

FLIGHT

&
The AIRCRAFT
ENGINEER.

First Aero Weekly in the World.

Founder and Editor: STANLEY SPOONER.

A Journal devoted to the Interests, Practice, and Progress of Aerial Locomotion and Transport.
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NOTICE OF REMOVAL.

The Offices—Editorial and Advertisement—of
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EDITORIAL COMMENT.

"Newspapers are an essential part of our war organisation."—
(Sir Auckland Geddes, Minister of National Service.)



HE appointment, officially announced on Tuesday, of Lord Rothermere as Air Minister comes as a surprise to most people. His was one of the last names to be thought of in connection with the new Secretaryship of State. As a matter of fact, among all the "probables" whose names have been passed about from mouth to mouth, that of Lord Rothermere has not even been mentioned until it was announced that he was to be appointed.

Lord
Rothermere
and the
Air
Ministry.

His appointment is, so far as the general public is concerned, an experiment, and we imagine that his administration of the new Ministry will be watched with the most anxious attention. So much hangs upon the efficient working and organisation of the Air Force that anything which appears in the least experimental is bound to lead to discussion and even criticism of a choice so unexpected as that of Lord Rothermere. While we cannot help expressing a good deal of regret that Lord Cowdray, who has unquestionably done a great deal of excellent work for the Air Services during his term of office, should have found it necessary to vacate the presi-

dency of the Board, and that Lord Northcliffe could not see his way to succeed him, we are frankly of opinion that a good alternative choice appears to have been made. Lord Rothermere is first and last a good all-round man of business and an organiser and administrator of high ability. That he is not better known to the public is due to the fact that his energies have been absorbed by work of the more useful but less spectacular kind. So far as his official life is concerned, he has to his credit the reorganisation of the Army Clothing Department, a department which has grown to inordinate proportions during the war and which had fallen into a condition only to be described as chaotic. He has pulled it straight and has succeeded in putting its organisation on sound business lines, so that it is now said to be one of the most efficiently organised Government institutions we have. Unless all the information we have is at fault, he may well find full scope for his ruthless methods of weeding out in his new sphere. Whether he will succeed in creating a real business organisation and to what extent his success will carry him towards the ideal of a paramount Air Service time alone will show. In the meantime, we have confidence in the wisdom of the appointment, for we are assured that Lord Rothermere will either achieve what he is setting out to do, or will retire at once if he finds the task beyond his powers. More than that cannot be asked of any Minister or public servant.

Progress
of the
Air Force
Bill.

The Air Force Bill has passed its penultimate stage in the House of Lords, and there seems no reason to doubt that it will shortly appear on the Statute Book in very much the form it had when it made its initial appearance in the Commons. On the whole, the debates in the House

of Lords have not produced anything of profound interest. The general feeling seems to have been that it was a Bill which was fully due and that the best interests of the country would be served by facilitating its progress as much as possible.

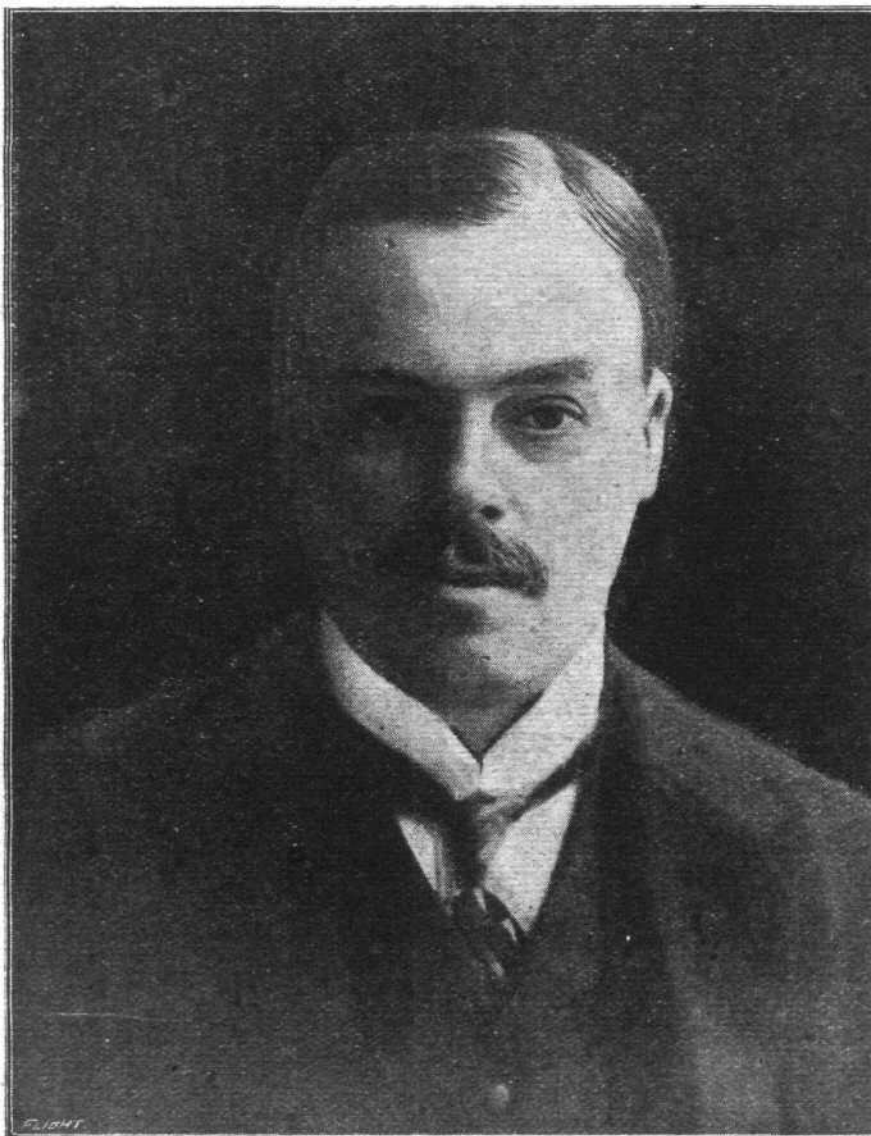
At the same time, there were one or two interesting speeches and statements made. Lord Cowdray, in supporting the Bill, said that it was the outcome of most anxious and careful thought and preparation. He disclaimed entirely the idea that the executive control at present exercised by commanders-in-chief was to be removed. The only difference would be one of administration. Whereas hitherto the Flying Services had been administered by two departments, the Admiralty and the War Office, and equipped under a complicated system in which no fewer than four departments were concerned, they would in future be administered by a single department and equipped by the Ministry of Munitions on the requisition of the Air Minister. He had a firm conviction that with the passing of the Bill we should be more than able to fulfil our expectations. We refer in passing to this, since it is absolutely in line with the arguments advanced from time to time by "FLIGHT" in its advocacy of a separate Air Service.

Lord Curzon told the House that he wished he could give the figures relating to the expansion of aircraft production under Lord Cowdray's administration of the Air Board. He could not do that without giving information to the enemy. It was sufficient to say that it had been prodigious. If they cast their eyes into the future and contemplated the war lasting, as seemed likely, well into next year, the figures of production would be such as to give a feeling of sure confidence not only as to our advantage over the enemy but as to our overwhelming superiority. This Bill was not a war measure only, but a post-war measure. Astonished as they had been by the development of the Air Service in the war it was not to be supposed that the development would cease with the war. It would remain a permanent and material part of our organisation.

The latter part of Lord Curzon's remarks is particularly welcome. It should tend to clear the air of many misunderstandings and misapprehensions as to the future of the Air Service in particular and of the industry in general. There has been abroad in certain quarters a feeling of uncertainty with regard to the post-war future of aviation. While we have credited the Government of the day with a just appreciation of the needs of the war, there has been a lurking feeling that it regarded the present expansion of the Air Services purely as a war measure and that, once the war is over, there would again be a danger of the official attitude towards aviation lapsing into its old time apathy. That is one reason for our un-

alloyed satisfaction at the materialisation of the single Air Service. It is one thing for the Air Services to be merely a subsidiary part of other departments but quite another for it to stand alone on its own feet. Under the one scheme we have two great departments intent upon their own business and regarding the needs of the Air Service as a mere side issue.

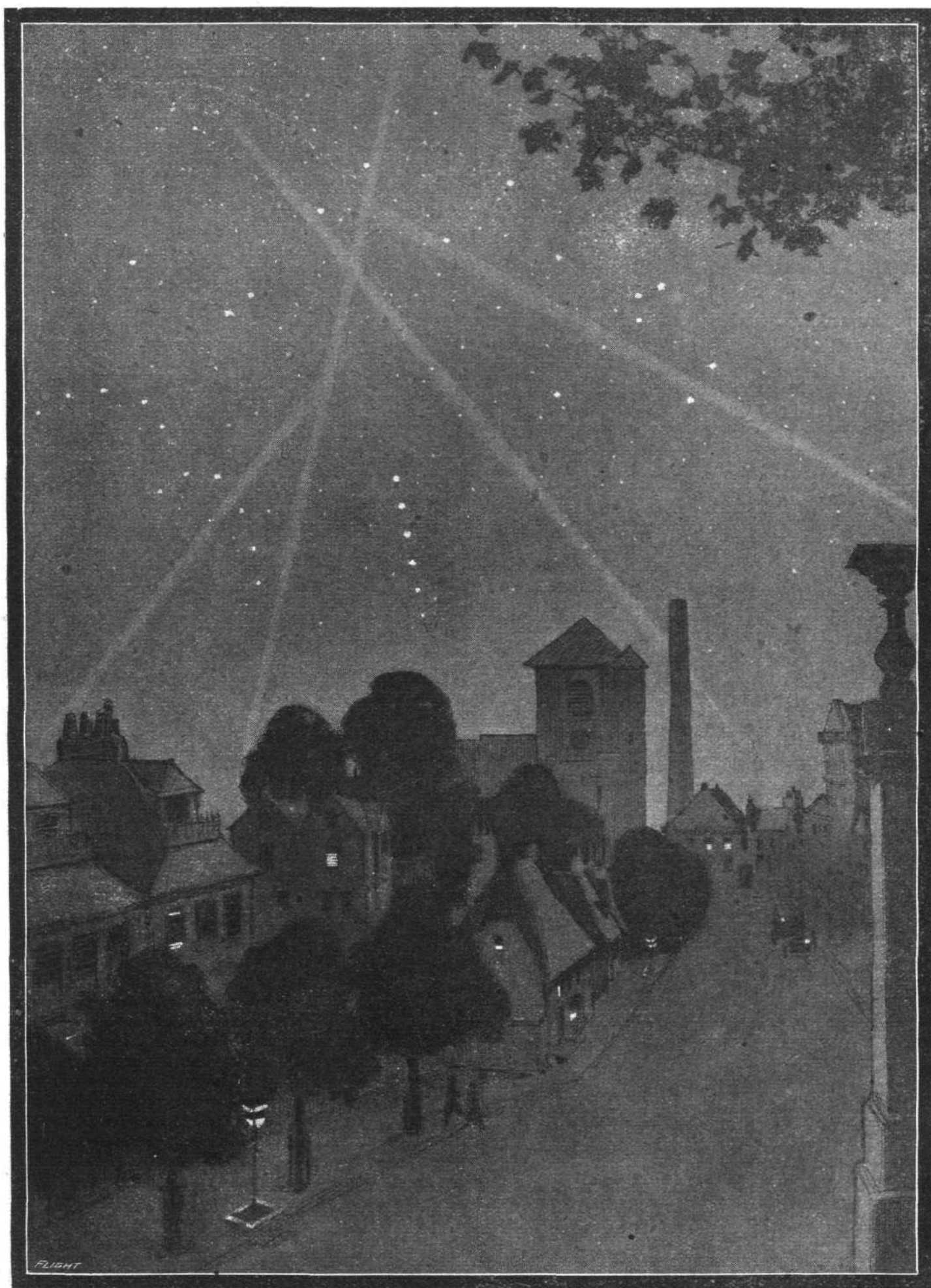
Under the other we have a single department which regards its own affairs as the one thing in the world that matters. That is the one way by which maximum efficiency can be achieved. To sum up, the passing of the new Bill gives us the opportunity for saying that it not only makes it all well with the present but holds out high hopes for the future as well.



LORD ROTHERMERE, the First President of the Air Council.

"One Uniform."

One point in connection with the Air Force Bill which was not made perfectly clear until the other day was that of the uniform of the new Force when it comes into being. It would follow almost as a matter of course that a Force so separate and distinct from the Navy and Army would eventually adopt its own uniform, but the question has been definitely disposed of by the answer of Major Baird to a question put in the House of Commons, in which he announced that it is proposed to adopt a distinctive uniform for the Air Force, but this uniform will not be made compulsory until sufficient time has elapsed for the old uniforms to be worn out.



Shrapnel, stars, and Very lights, when the Gotha moonlight raiders do their work.—An "impression" in a North London suburb of the sky during the raid last month of the German squadrons.

We have laid considerable emphasis on the necessity of a distinctive uniform for the Air Force, and so far as we are aware "FLIGHT" has been the only journal to make this point. Now, however, that it is on the eve of becoming an accomplished fact, we quite anticipate hearing of quite a number of others who have for years made the separate uniform a principal plank in their platform! To some, this matter of the distinctive uniform may seem to be a small matter, but we hold that it is really an essential one. It gets rid at once of the idea and the feeling that the Air Force is a merely subsidiary affair, ranking a long way after the other Services of which it has hitherto been part and parcel. It makes for the creation of an immediate feeling of *esprit de corps* which would take a long time to materialise in concrete form were the uniform to be copied from either service or merely hybridised from them. From that point of view we really think it would be better to cut losses and make a free issue of the new uniform to officers and men at once rather than to allow the Air Force when it comes into being to feel, as it were, a sort of Cinderella condemned to wear the shreds and patches of bygone days until they fall to pieces. We hope the decision to postpone uniforming the Force will receive the serious reconsideration it seems to deserve.

The World's Record Flight.

Without the least desire to be unduly critical, we cannot refrain from saying that it seems to be a pity that, while we are indulging in columns upon columns of praise of the undoubtedly wonderful achievements of aircraft belonging to other Powers, it has taken the Admiralty four months to make up its mind to disclose the fact that the world's record for long-distance flight is actually held by a British machine, flown by British officers. The following is the official announcement of the fact:—

"It will be remembered that during July a successful air attack was carried out on objectives in the vicinity of Constantinople. This was accomplished by a large British bombing aeroplane of the Handley-Page type which flew from England, where she was constructed, to one of our bases in the Mediterranean. The journey was accomplished in a series of eight flights. Amongst other places, stops were made at Lyons and Rome. The total distance flown was nearly 2,000 miles, the machine being actually in the air for just over thirty-one hours.

"During some parts of the flight strong winds and heavy rainstorms were experienced, and for one stretch of over 200 miles the route lay over mountainous country, where it would have been impossible for any machine to land. Nevertheless, the aeroplane carried out its journey, practically to time-table, which is believed to be easily a world's record for a cross-country journey, and also for the weight carried for the distance, the machine being self-contained as regards engine and aeroplane spares."

As we say, we do not want to be critical, but still we do think the announcement is a bit belated. It is not only that the constructors of the machine deserve the publicity attendant upon such a record flight—though that is a side issue just now—but the public has become so used to the idea that the foreign aeroplane is vastly superior to our own, owing to the greater publicity given to its achievements, that anything which would tend to dispel the illusion ought in the national interests to be given out with the least

possible delay. It is not as though to have announced the facts in, say, August would have given information to the enemy. We daresay the Turks knew that a Handley-Page machine had been over Constantinople! The fact that the "Goeben," the German headquarters ship, and the Turkish War Office were effectually bombed is scarcely likely to have escaped the notice of the Turkish High Command, so it is a little difficult to see why the information, which is so calculated to have a heartening effect on our own people, has been withheld for so long. One of the worst faults we have committed in the conduct of the war is that of the failure to sufficiently advertise what we have done and are doing.

As a nation we are very averse to shouting about our deeds, but these are abnormal times, and there are issues depending which render it absolutely essential that we should talk about matters that normally we should prefer to go unnoticed. The whole thing is summed up in the one word "Propaganda."

Compensation for Air Raid Damage.

As long ago as September, 1914, "FLIGHT" took the lead in advocating that damage caused by hostile aircraft to civilian property should be made a national liability. Failing that, we advocated that it should be made a national asset in the form of a scheme of State assurance. Of the two, for reasons which were set forth in detail at the time, we pronounced strongly in favour of the former. Hitherto, however, the Government have been content to work along the lines of the alternative, and its scheme of assurance has, we understand, worked very well. Now, however, a trial is to be given of the other, and a scheme has been announced in detail for giving compensation up to a sum of £500 for damage to property caused by air raids and bombardment. The scheme, which we print in full elsewhere in this issue of "FLIGHT," is essentially simple in its terms. Briefly, all damage to property arising out of the causes named will be made good up to a total of £500, any liability beyond that sum having to be made good in the ordinary way. We welcome the departure, which seems to us to be excellent and to cover all the ground that is necessary. It is the more welcome from our own point of view that this journal was the first to advocate a scheme of compensation without premium.

A Memorable Meeting.

The Conference between the Government and the U.S. War Mission held at the Prime Minister's house in Downing Street the other day will be an historic one in the relations between ourselves and the great republic of the West. From the point of view of the British public it marks the real entry of the United States into the active participation of the war. It also marks a long step in advance towards that unity of control which has been so elusive a quantity in the counsels of the Allies for more than three years of desperate war. From our own singular point of view, too, it has its own significance in that for the first time the respective air interests of the two Allies were represented at the common council table. It may be only a straw, and a small one at that, but it carries a great lesson for those who care to read. The real significance of it is, to our way of thinking, that for the first time in all our history the Air Service has been elevated to the same level as the Navy and Army

by being called in to take part in a conference of capital importance concerning the chief issues of the war. *Tempora mutantur.*

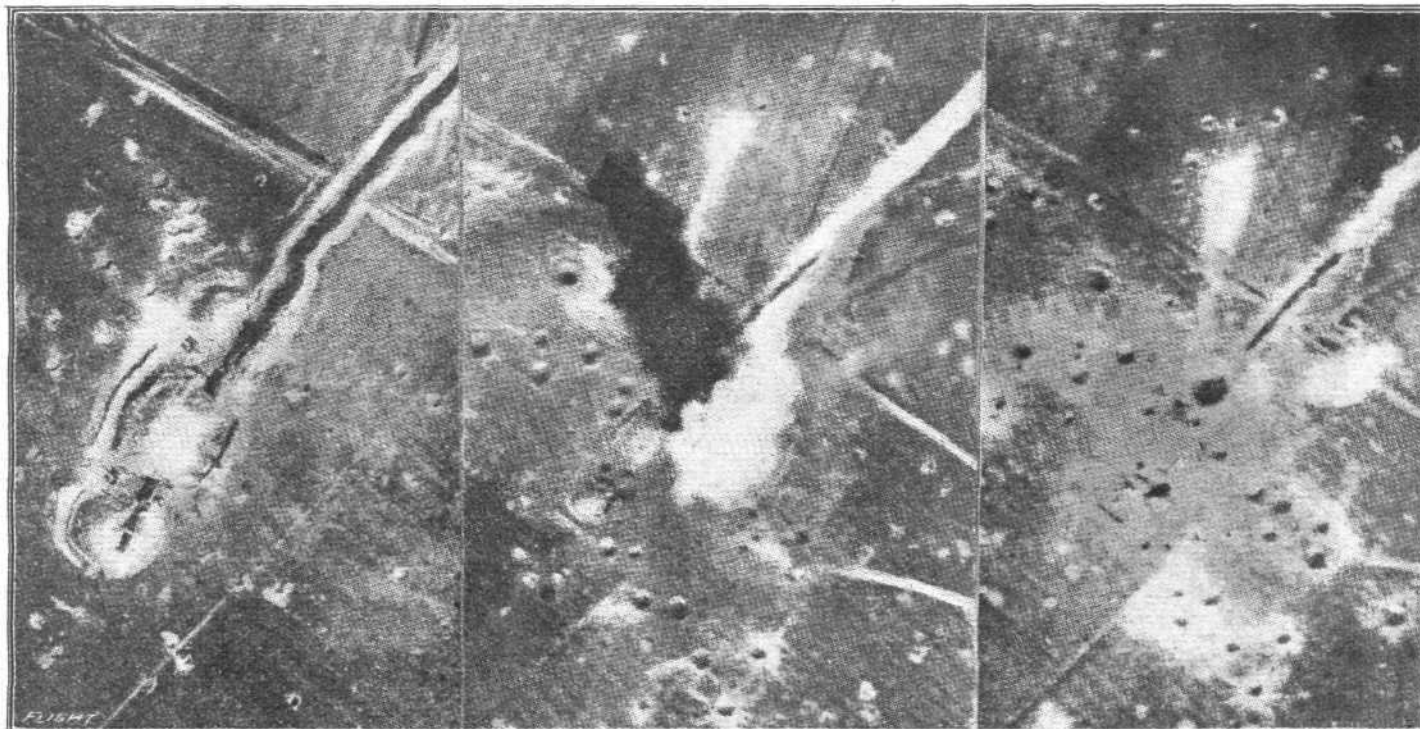
**The
Furniture
Trade
and
Aeroplane
Work.**

In the issue of "FLIGHT" of November 1st we dealt with certain aspects of the problems presented by the necessity of obtaining more wood-workers for aeroplane construction. The main point we had in mind was that the maximum efficiency was more likely to be attained by organising the furniture and allied trades, which possess ready made all the requisite plant and operative facilities, than by the promiscuous "combining-out" of these industries, so well-beloved by a section of the half-penny Press. We had before us, too, the methods, or the want of methods, of the Ministry of National Service as we had known them before Sir Auckland Geddes assumed the direction of this department. Since we wrote, we have as a result of further enquiries arrived at the conclusion that whatever fault there may be in connection with the supply of aircraft workers it does not lie at the door of the Ministry of National Service. As a matter of fact, it is difficult to see what more could have been done by any department than has been set in line by the Ministry.

When it became evident that the demand for wood-workers was a serious and growing factor in the production of aircraft, the Minister of National Service called together employers and operatives engaged in the furniture trade, and as a result a joint committee was formed for the purpose of organising the trade along the lines suggested by our contemporary the *Furniture Record*, from whose articles we quoted at the time to which we allude. Masters and men appear to have thrown themselves into the work of organisation with a hearty goodwill, and we believe it is a fact that

the trade is now ready and able to turn practically the whole of its energies to the output of the necessary woodwork for aircraft. The question which now seems to arise is whether or not the Air Board is willing to take advantage of the organisation which lies ready to its hand, or whether it will continue to insist upon doing things in its own way. Let us say at once that we have no exact knowledge of its intentions, but so far as we have been able to learn, its attitude has not been all it might have been. To our way of thinking, the proposition is one of pure business efficiency.

We want aircraft, more aircraft, and yet more aircraft, to make good our losses on the various fronts, and to build up that great fleet of aeroplanes which, we are promised, is going to carry the war into the enemy's country next spring. We are under no delusions as to the supreme effort that Germany is making to get on level terms with the air power of the Allies, and we say in all seriousness that unless we are all prepared to pull together, to organise our capacity for output along the best, most efficient lines, and to have done with everything which savours in the very least of inter-departmental jealousy, it is quite possible the Hun will succeed. And let us once more insist upon the point that whatever happens we, for our own part, are absolutely satisfied that the Ministry of National Service has done all that is humanly and departmentally possible to bring matters into line. It has taken a wide view, a business view, of the question as a whole. It has succeeded in putting into line a businesslike organisation, at least so far as the furniture trade end of the matter is concerned, and it seems to us that it is up to the Air Board to take advantage of that organisation or to find something better and more workable. Knowing what we do, we believe that the latter is not possible, at least without a serious, possibly a vital, loss of time. We may leave it at that in the meantime.



ARTILLERY SPOTTING BY THE GERMANS.—A German publication prints the above photographs, taken from a German machine, with the following comments. On the left: Enemy gun position—two hits are plainly visible; round about are seen numerous hits from previous shellings. Centre: A hit in the ammunition dump, indicated by a huge smoke-cloud (the height of the smoke-cloud may be judged by the shadow on the ground). On the right: A direct hit! (Volltreffer); the burnt-out ammunition dump, the position of which is indicated by the large shell hole.

THE NEW AIR MINISTER.

It was officially announced on November 27th that the King has been pleased to approve of the appointment of Lord Rothermere to be President of the Air Council.

Lord Rothermere, who was Mr. Harold Harmsworth, is a younger brother of Lord Northcliffe; he will be fifty next April. He has built up several large businesses, including some prominent newspapers, such as, the *Glasgow Daily Record*, the *Leeds Mercury*, the *Daily Mirror* and the *Sunday Pictorial*. He has also been solely or partially concerned in such vast business concerns as the Anglo-Newfoundland Development Co.

Lord Rothermere assisted to found the Union Jack Club.

of which the usefulness has been fully proved since the war; and he founded the King Edward VII. Chair of English Literature in the University of Cambridge—at present occupied by Sir Arthur Quiller-Couch.

His first step in public service was his appointment as Director of the Army Clothing Department when grave deficiencies had been discovered in that quarter, and his new appointment is doubtless partly in recognition of his success in reorganising the department.

Lord Rothermere has suffered personally in the war. His second son died most gallantly while leading his men against the enemy a year ago. His elder son and heir has been twice wounded, and is at present serving at the front; and his third son, on leaving Eton, has joined the Royal Marines.

RELIEF OF AIR RAID DISTRESS—GOVERNMENT SCHEME.

THE following are the main points in a memorandum which has been circulated by the Local Government on the subject of dealing with distress caused by air raids:—

"The importance of having the local organisation in readiness beforehand was fully recognised at the conference, and the information which Mr. Hayes Fisher has received indicates that in most of the boroughs and urban districts in the metropolitan area preparations have been made for dealing with any distress which may arise immediately after a raid. It is essential that during the progress of a raid the control of the area attacked should remain in the hands of the police authorities. But it will facilitate the work of relief if centres are selected beforehand to which all persons whose houses have been damaged, or who are otherwise in need of help, can be directed to go. At each of these centres there should be a body of responsible workers with full authority to give any immediate assistance that may be needed. It is most desirable that all workers should have their posts and duties assigned to them beforehand. Voluntary organisations are entitled to be repaid any expenditure properly incurred by them as agents of the Local Relief Committee, and the Government Committee are prepared to recommend grants from the National Relief Fund for this purpose.

"The immediate assistance required by victims of air raids will generally take the form of (a) shelter, (b) food, and (c) financial assistance.

"As regards shelter, experience has shown that the majority of those whose houses have been damaged can readily find accommodation with their friends and neighbours. Nevertheless, there may be a residue for whom other accommodation has to be provided, and therefore local committees have been advised to have in readiness a list of suitable lodgings or shelters to which the homeless can be sent. There is a not unnatural reluctance to use the Poor Law institutions for this purpose, but if any victims of air raids are admitted to Poor Law institutions they are to be treated as guests, and not to be regarded for any purpose whatever in receipt of poor relief. With regard to the provision of food, the best plan appears to be to make arrangements with the philanthropic organisations accustomed to do this work. It is also permissible to give vouchers for presentation at the local shops. Where immediate financial help is needed, small grants may be given to last for a few days pending a full investigation of the case.

"The names and addresses of all applicants for assistance should be taken, and a rough card index is most convenient for this purpose, brief entries being made on the cards of (a) any temporary assistance given, and (b) any claims for further assistance. All persons who appear to be in need of further assistance should be invited to apply again in a few

days and should be told where to apply. In some boroughs posters have been exhibited giving the address of the office to which applicants should go for help or advice. It would be well to have such posters printed so that they can be exhibited within a few hours after a raid. In any case information as to the addresses of the relief offices should be published as widely as possible in the district. Every effort should be concentrated on the temporary alleviation of distress, and it is better to err on the side of a generous and sympathetic handling of the cases than to withhold relief from any genuine case.

"In addition to these emergency measures, the powers of the committee enable them to give temporary maintenance allowances up to an amount equivalent to the rates of Army separation allowances and supplementary maintenance allowances in exceptional cases, and to defray funeral expenses up to £9 in each case. With the sanction of the Government Committee, they may make special grants, for instance, for medical or surgical treatment or appliances.

"Local committees have also been authorised to arrange for the removal and storage of furniture from damaged houses, and to assist the occupants in procuring fresh accommodation.

"Apart from such measures of temporary assistance, the Government have undertaken to make *ex gratia* awards from public funds on the lines of the Workmen's Compensation Act in cases of personal injury resulting in death or permanent disablement. The local committees have been entrusted with the investigation of such claims, and they should advise and assist the applicants in making out their claims.

"The Government have now announced a scheme for giving owners of property not exceeding £500 in value compensation for damage done by air raids and bombardments without payment of premium. Although the local committees are strictly concerned only with the relief of distress, as distinguished from compensation, it is very desirable that a close connection should be maintained between the machinery for compensation and that for the relief of distress. Procedure to effect this purpose is outlined in the documents sent to the committees.

"All local committees are urged to apply to the Government Committee, at the Local Government Board, for any help or advice they may need. Applications for grants will be dealt with promptly, and the Government Committee are prepared to recommend a grant from the National Relief Fund to any committee which desires to have funds in hand to enable it to deal immediately with distress which might arise should an air raid occur."

Details of the Government scheme of compensation for damage to property were given in our issue of November 8th.

Honours for the R.F.C.

It was announced in the *London Gazette* of November 26th that the King has been pleased to confer the following rewards for gallantry and distinguished service in the field. The acts of gallantry for which the decorations have been awarded will be announced as early as practicable:—

Distinguished Service Order.

Temp. Capt. P. F. FALLARD, M.C., Gen. List and R.F.C.

Bar to the Military Cross.

Temp. Capt. H. G. E. LUCHFORD, M.C., Gen. List and R.F.C., (M.C. gazetted October 27th.)

Military Cross.

Lieut. (Temp. Capt.) D. S. HALL, A. and S. Hrs. and R.F.C.

Capt. F. H. LAURENCE, Worc. (S.R.) and R.F.C.

Temp. Lieut. J. S. MICHIE, Gen. List and R.F.C.

2nd Lieut. J. D. PAYNE, Gen. List and R.F.C.

2nd Lieut. (Temp. Capt.) F. SOWREY, D.S.O., R. Fus. and R.F.C.

It was announced in the *London Gazette* of November 20th that the King has been pleased to approve of the award of the Military Medal for bravery in the Field to the following:—

44750 2nd Air-Mech. A. COHEN, R.F.C., attd. R.G.A.

78140 Sergt. A. F. FRASER, R.F.C.

8601 1st Air-Mech. H. J. LEE, R.F.C., attd. R.G.A.

10220 1st Air-Mech. W. E. LISTER, R.F.C., attd. R.G.A.

P/13911 Corpl. J. MASON, R.F.C.

23232 Sergt. A. A. L. C. MOIR, R.F.C.

43972 2nd Air-Mech. W. I. D. STREET, R.F.C., attd. R.G.A.

65385 1st Air-Mech. H. WATSON, R.F.C.

THE King has been pleased to approve of the award of the Meritorious Service Medal to the following for gallantry in the performance of military duty:—

69380 2nd Cl. Air-Mech. A. H. NORRIS, R.F.C.

INTERNATIONAL AIRCRAFT STANDARDS.

(Continued from page 1226.)

2S1—Chemical Compositions of Steels.

[The steels shall be designated by serial number.]

The steels shall conform to the requirements as to chemical composition specified in the accompanying tables.

An analysis of each melt of steel shall be made by the manufacturer to determine the percentages of the elements specified. The chemical composition thus determined shall be reported to the purchaser or his representative and shall conform to the requirements specified.

When electric or crucible furnace steel is specified in the order, the maximum allowable percentages of phosphorus and sulphur, may, at the option of the purchaser, be limited to 0.03 per cent.

The system of numbering of the steels is the same as that of the Society of Automotive Engineers, but the composition is not always identical.

NICKEL-CHROMIUM STEELS.

| Number. | Carbon. | Manganese. | Phosphorus, maximum. | Sulphur, maximum. | Nickel. | Chromium. |
|----------|-----------|------------|----------------------|-------------------|-----------|-----------|
| 3120 .. | 0.15-0.25 | 0.30-0.60 | 0.040 | 0.045 | 1.00-1.50 | 0.45-0.75 |
| 3130 .. | 0.25-0.35 | 0.50-0.80 | 0.040 | 0.045 | 1.00-1.50 | 0.45-0.75 |
| 3135 .. | 0.30-0.40 | 0.50-0.80 | 0.040 | 0.045 | 1.00-1.50 | 0.45-0.75 |
| 3140 .. | 0.35-0.45 | 0.50-0.80 | 0.040 | 0.045 | 1.00-1.50 | 0.45-0.75 |
| 3215 .. | 0.10-0.20 | 0.30-0.60 | 0.040 | 0.045 | 1.50-2.00 | 0.09-1.25 |
| 3230 .. | 0.25-0.35 | 0.30-0.60 | 0.040 | 0.045 | 1.50-2.00 | 0.90-1.25 |
| 3240 .. | 0.35-0.45 | 0.30-0.60 | 0.040 | 0.045 | 1.50-2.00 | 0.90-1.25 |
| X3315 .. | 0.10-0.20 | 0.30-0.60 | 0.040 | 0.045 | 2.75-3.25 | 0.70-0.95 |
| X3330 .. | 0.25-0.35 | 0.45-0.75 | 0.040 | 0.045 | 2.75-3.25 | 0.70-0.95 |
| X3340 .. | 0.35-0.45 | 0.45-0.75 | 0.040 | 0.045 | 2.75-3.25 | 0.70-0.95 |
| 3315 .. | 0.10-0.20 | 0.30-0.60 | 0.040 | 0.045 | 3.25-3.75 | 1.25-1.75 |
| 3330 .. | 0.25-0.35 | 0.30-0.60 | 0.040 | 0.045 | 3.25-3.75 | 1.25-1.75 |
| 3340 .. | 0.35-0.45 | 0.30-0.60 | 0.040 | 0.045 | 3.25-3.75 | 1.25-1.75 |
| X3340 .. | 0.35-0.45 | 0.30-0.60 | 0.040 | 0.045 | 4.00-5.00 | 1.00-1.50 |

CHROMIUM STEELS.

| | | | | | | |
|----------|-----------|-----------|-------|-------|------|-----------|
| 51100 .. | 0.95-1.10 | 0.20-0.45 | 0.030 | 0.030 | None | 1.30-1.50 |
|----------|-----------|-----------|-------|-------|------|-----------|

CHROMIUM-VANADIUM STEELS.

| | Carbon. | Manganese. | Phosphorus, maximum. | Sulphur, maximum. | Chromium. | Vanadium, minimum. |
|---------|-----------|------------|----------------------|-------------------|-----------|--------------------|
| 6120 .. | 0.15-0.25 | 0.30-0.60 | 0.040 | 0.045 | 0.60-0.90 | 0.15 |
| 6130 .. | 0.25-0.35 | 0.50-0.80 | 0.040 | 0.045 | 0.80-1.10 | 0.15 |
| 6140 .. | 0.35-0.45 | 0.50-0.80 | 0.040 | 0.045 | 0.80-1.10 | 0.15 |
| 6150 .. | 0.45-0.55 | 0.50-0.80 | 0.040 | 0.045 | 0.80-1.10 | 0.15 |

TUNGSTEN STEELS.

| | Carbon. | Manganese, maximum. | Phosphorus, maximum. | Sulphur, maximum. | Tungsten. |
|---------|-----------|---------------------|----------------------|-------------------|-----------|
| W60 .. | 0.50-0.70 | 0.30 | 0.035 | 0.035 | 3.00-4.00 |
| W60A .. | 0.50-0.70 | 0.30 | 0.035 | 0.035 | 3.00-4.00 |
| W60B .. | 0.50-0.70 | 0.30 | 0.035 | 0.035 | 0.50-1.00 |

3S1—Specifications for Carbon Steel Bars and Billets for Case-Hardening.

GENERAL.—1. The general specifications, 1G1, shall form, according to their applicability, a part of these specifications.

MATERIAL.—2. The material for these bars shall be chosen from among the standard I.A.S.B. steels listed below. The composition chosen shall be stated by the manufacturer or contractor; it shall be further limited as follows: Carbon, not over 0.25 per cent.

MANUFACTURE.—3. (a) The steel shall be manufactured, or at least finished, by the open-hearth, electric furnace, or crucible process.

(b) A sufficient discard shall be made from each ingot to secure freedom from piping and undue segregation.

CARBON STEELS.

| Number. | Carbon. | Manganese. | Phosphorus, maximum. | Sulphur, maximum. | Nickel. | Chromium. |
|---------|-----------|------------|----------------------|-------------------|---------|-----------|
| 1010 .. | 0.05-0.15 | 0.30-0.60 | 0.045 | 0.050 | .. | .. |
| 1015 .. | 0.10-0.20 | 0.30-0.60 | 0.045 | 0.050 | .. | .. |
| 1020 .. | 0.15-0.25 | 0.30-0.60 | 0.045 | 0.050 | .. | .. |
| 1025 .. | 0.20-0.30 | 0.50-0.80 | 0.045 | 0.050 | .. | .. |
| 1030 .. | 0.25-0.35 | 0.50-0.80 | 0.045 | 0.050 | .. | .. |
| 1035 .. | 0.30-0.40 | 0.50-0.80 | 0.045 | 0.050 | .. | .. |
| 1045 .. | 0.40-0.50 | 0.50-0.80 | 0.045 | 0.050 | .. | .. |
| 1050 .. | 0.45-0.55 | 0.50-0.80 | 0.045 | 0.050 | .. | .. |
| 1065 .. | 0.60-0.70 | 0.50-0.70 | 0.040 | 0.045 | .. | .. |
| 1070 .. | 0.65-0.75 | 0.50-0.70 | 0.040 | 0.045 | .. | .. |
| 1080 .. | 0.75-0.90 | 0.25-0.50 | 0.040 | 0.045 | .. | .. |
| 1095 .. | 0.90-1.05 | 0.25-0.50 | 0.040 | 0.045 | .. | .. |

NICKEL STEELS.

| | | | | | | |
|---------|-----------|-----------|-------|-------|-----------|----|
| 2315 .. | 0.10-0.20 | 0.30-0.60 | 0.040 | 0.045 | 3.25-3.75 | .. |
| 2320 .. | 0.20-0.30 | 0.30-0.60 | 0.040 | 0.045 | 3.25-3.75 | .. |
| 2325 .. | 0.20-0.30 | 0.50-0.80 | 0.040 | 0.045 | 3.25-3.75 | .. |
| 2330 .. | 0.25-0.35 | 0.50-0.80 | 0.040 | 0.045 | 3.25-3.75 | .. |
| 2335 .. | 0.30-0.40 | 0.50-0.80 | 0.040 | 0.045 | 3.25-3.75 | .. |

(c) The billets from which the bars are made are to be rough turned or chipped to remove all surface defects which might produce seams in the finished bar. No undercutting in chipping will be allowed.

(d) The steel manufacturer shall state the heat treatment recommended for case hardening this steel and to give the physical properties specified.

WORKMANSHIP AND FINISH.—4. (a) The bars are to be sound, commercially straight, free from pipes, laps, cracks, twists, seams, voids, and damaged ends, and are to have a workmanlike finish. They are to be uniform in quality, within the stipulated margins of manufacture, capable of being turned and threaded readily, and of taking a good finish.

(b) Any article may be rejected because of injurious defects or faults in manufacture at any time notwithstanding that it has previously passed the physical and chemical tests; it shall be returned to the manufacture, at the latter's expense. This clause shall not be taken to apply to materials fabricated after export.

PHYSICAL PROPERTIES AND TESTS.—5. The bars shall have the following physical properties:

Tensile Test.—(a) Minimum tensile strength, 70,000 lbs. per sq. in. (49.21 kg./sq. mm.). Minimum yield point, 45,000 lbs. per sq. in. (31.64 kg./sq. mm.). Minimum elongation in 2 in. (50.8 mm.), or proportional gauge length, 20 per cent.

Hardness.—(b) After carbonising hardening and tempering the case must show a minimum Shore Scleroscope hardness number of 75.

Impact.—(c) In all cases in which impact testing machines of the pendulum type are available tests will be carried out to determine the specific impact work of rupture of the core in foot-pounds (or kilogram-metres). Results markedly lower than the average for this type of material will be sufficient cause for further investigation (or reheat treatment) of the material.

SELECTION OF TEST SPECIMENS.—6. Three bars of each size rolled from a heat shall be taken and test pieces prepared in accordance with the I.A.S.B. standards. Each test piece and the bar from which it is cut shall be stamped with an identifying number. Should any of the test pieces after being heat treated in the manner recommended by the steel manufacturer fail to show the prescribed physical properties new test pieces similarly identified shall be made from the same three bars. At the option of the purchaser the steel manufacturer may recommend a different heat treatment for the second set of test specimens, and to that end he may make such tests as he desires from the remainder of the three bars taken for the test. Should any of the three specimens taken for the final tests fail to show the required physical properties, the bars of that heat of the size represented by the specimens shall be rejected.

DIMENSIONS AND TOLERANCES.—7. The dimensions and tolerances shall be those given by the specifications 3S11.

DELIVERY, PACKING AND SHIPPING.—8. (a) The bars may be delivered in the annealed or in the heat-treated condition.

(b) The bars shall in general be grouped in bundles weighing not more than 250 lbs. (113.4 kg.), unless otherwise agreed between manufacturer and purchaser; the heat and the I.A.S.B. steel serial number shall be plainly marked on a metal tag attached to each bundle. If bars are not so grouped and bundled, each bar shall be plainly marked with the heat number and the I.A.S.B. steel and serial number.

Compositions of Standard Steels.

| No. | Carbon. | Manganese. | Phosphorus, maximum. | Sulphur, maximum. |
|---------|-----------|------------|----------------------|-------------------|
| 1010 .. | 0.05-0.15 | 0.30-0.60 | 0.045 | 0.050 |
| 1015 .. | 0.10-0.20 | 0.30-0.60 | 0.045 | 0.050 |
| 1020 .. | 0.15-0.25 | 0.30-0.60 | 0.045 | 0.050 |

When electric or crucible furnace steel is specified in the order, the maximum allowable percentage of phosphorus and sulphur may, at the option of the purchaser, be limited to 0.03 per cent.

3S2—Specifications for Medium Carbon Steel Bars and Billets.

GENERAL.—1. The general specifications, 1G1, shall form, according to their applicability, a part of these specifications.

MATERIAL.—2. The I.A.S.B. standard steel No. 1035 shall be used; its composition is as follows: Carbon, 0.30-0.40; manganese, 0.50-0.80; phosphorus, maximum, 0.045; sulphur, maximum, 0.050.

When electric or crucible furnace steel is specified in the order, the maximum allowable percentages of phosphorus and sulphur may, at the option of the purchaser, be limited to 0.03 per cent.

MANUFACTURE.—3. (a) The steel shall be manufactured, or at least finished by the open-hearth, electric furnace, or crucible process.

(b) A sufficient discard shall be made from each ingot to secure freedom from piping and undue segregation.

(c) The billets from which the bars are made are to be rough turned or chipped to remove all surface defects which might produce seams in the finished bar or forging. No undercutting in chipping will be allowed.

Heat Treatment.—(d) The manufacturer shall state the heat treatment recommended to give physical properties specified.

(e) If the bars are delivered in the heat-treated condition, and the physical tests show that the heat treatment has not been correct, the bars may be re-treated at the option of the purchaser.

WORKMANSHIP AND FINISH.—4. (a) The bars are to be sound, commercially straight, free from pipes, laps, cracks, twists, seams, voids, and damaged ends, and are to have a workmanlike finish. They are to be uniform in quality, within the stipulated margins of manufacture, capable of being turned and threaded readily and of taking a good finish.

(b) Any article may be rejected because of injurious effects or faults in manufacture at any time, notwithstanding that it has previously passed the physical and chemical tests; it shall be returned to the manufacturer at the latter's expense. This clause shall not be taken to apply to materials fabricated after export.

PHYSICAL PROPERTIES AND TESTS.—5. The bars shall have the following physical properties:

Tensile Test.—(a) Minimum tensile strength, 80,000 lbs. per sq. in. (56.24 kg. per sq. mm.); minimum yield point 60,000 lbs. per sq. in. (42.18 kg. per sq. mm.); minimum elongation in 2 in. (50.8 mm.) or proportional gauge length 22 per cent.; minimum reduction of area, 45 per cent.

Impact Test.—(b) In all cases in which impact testing machines of the pendulum type are available, tests may be carried out to determine the specific impact work of rupture in ft.-lbs. (or kilogram-metres). Results markedly lower than the average for this type of material will be sufficient cause for further investigation (or reheat treatment) of the material.

SELECTION OF TEST SPECIMENS.—6. Three bars of each size rolled from a heat shall be taken and test pieces prepared in accordance with the I.A.S.B. standards. Each test piece and the bar from which it is cut shall be stamped with an identifying number. Should any of the test pieces, after being heat treated in the manner recommended by the steel manufacturer, fail to show the prescribed physical properties, new test pieces similarly identified shall be made from the same three bars. At the option of the purchaser the steel manufacturer may prescribe a different heat treatment for the second set of test specimens, and to that end he may make such tests as he desires from the remainder of the three bars taken for the tests. Should any of the three specimens taken for the final tests fail to show the required physical properties, the bars of that heat of the size represented by the specimens shall be rejected. Where bars are purchased in the heat-treated condition, test specimens shall be cut from the heat-treated bar.

DIMENSIONS AND TOLERANCES.—7. The dimensions and tolerances shall be those given in the specification 3S11.

DELIVERY, PACKING AND SHIPPING.—8. (a) The bars may be delivered in the annealed or in the heat-treated condition.

(b) The bars, shall, in general, be grouped in bundles weighing not more than 250 lbs. (113.4 kg.) unless otherwise agreed between manufacturer and purchaser. The heat and the I.A.S.B. steel serial numbers shall be plainly marked on a metal tag attached to each bundle. If bars are not so grouped and bundled, each bar shall be plainly marked with the heat number and the I.A.S.B. steel and serial number.

3S3—Specifications for Alloy Steel Bars and Billets.
(100,000 lb. sq. in. Tensile Strength.)

GENERAL.—1. The general specifications, 1G1, shall form, according to their applicability, a part of these specifications.

MATERIAL.—2. The material for these bars shall be chosen from among the I.A.S.B. standard alloy steels listed below. The composition chosen shall be stated by the manufacturer or contractor, and is further limited as follows: Carbon, not over 0.35 per cent.

MANUFACTURE.—3. (a) The steel shall be manufactured or at least finished by the open-hearth electric furnace or crucible process.

(b) A sufficient discard shall be made from each ingot to secure freedom from piping and undue segregation.

(c) The billets from which the bars are made are to be rough turned or chipped to remove all surface defects, which might produce seams in the finished bar. No undercutting in chipping will be allowed.

Heat Treatment.—(d) The steel manufacturer shall state the heat treatment recommended to give the physical properties specified.

(e) If the bars are furnished in the heat treated condition and the physical tests show that the heat treatment has not been correct, the bars may be re-treated at the option of the purchaser.

WORKMANSHIP AND FINISH.—4. (a) The bars are to be sound, commercially straight, free from pipes, laps, cracks, twists, seams and damaged ends, and are to have a workmanlike finish. They are to be uniform in quality, within the stipulated margins of manufacture, capable of being turned and threaded readily, and of taking a good finish.

(b) Any article may be rejected because of injurious defects or faults in manufacture at any time, notwithstanding that it has previously passed the physical and chemical tests; it shall be returned to the manufacturer at the latter's expense. This clause shall not be taken to apply to materials fabricated after export.

PHYSICAL PROPERTIES AND TESTS.—5. (a) The bars shall have the following physical properties:

Tensile Test.—(b) Minimum tensile strength, 100,000 lbs. per sq. in. (70.30 kg./mm.²); minimum yield point, 80,000 lbs. per sq. in. (56.24 kg./mm.²); minimum elongation in 2 in. (50.8 mm.) (or proportional gauge length), 20 per cent.; minimum reduction of area, 50 per cent.

Impact Test.—(c) When impact-testing machines of the pendulum type are available tests shall be carried out if required to determine the specific impact work of rupture in foot-pounds (or kilogram-metres). Results markedly lower than the average for this type of material will be sufficient cause for further investigation (or reheat treatment) of the material.

Selection of Test Specimens.—(d) Three bars of each size rolled from a heat shall be taken and test pieces prepared in accordance with the I.A.S.B. standards. Each test piece and the bar from which it is cut shall be stamped with an identifying number. Should any of the test pieces, after being heat treated in the manner recommended by the steel manufacturer, fail to show the prescribed physical properties, new test pieces similarly identified shall be made from the same three bars. At the option of the purchaser the steel manufacturer may recommend a different heat treatment for the second set of test specimens, and to that end he may make such tests as he desires from the remainder of the three bars taken for the tests. Should any of the three specimens taken for the final tests fail to show the required physical properties, the bars of that heat of the size represented by the specimens shall be rejected. When bars are purchased in the heat-treated condition, test specimens shall be cut from the heat-treated bar.

DIMENSIONS AND TOLERANCES.—6. The dimensions and tolerances shall be those given in the Specification 3S11.

DELIVERY, PACKING AND SHIPPING.—7. (a) The bars may be delivered in the annealed or in the heat-treated condition.

(b) The bars shall in general be grouped in bundles weighing not more than 250 lbs. (113.4 kgs.), unless otherwise agreed between manufacturer and purchaser. The heat number and the I.A.S.B. steel serial number shall be plainly marked on a metal tag attached to each bundle. If bars are not so grouped and bundled, each bar shall be plainly marked with the heat number and the I.A.S.B. steel serial number.

Chemical Composition of Standard Alloy Steels.

NICKEL STEELS.

| Number. | Carbon. | Manganese. | Phosphorus, maximum. | Sulphur, maximum. | Nickel. | Chromium. |
|---------|-----------|------------|----------------------|-------------------|-----------|-----------|
| 2320 .. | 0.15-0.25 | 0.30-0.25 | 0.040 | 0.045 | 3.25-3.75 | .. |
| 2325 .. | 0.20-0.30 | 0.50-0.80 | 0.040 | 0.045 | 3.25-3.75 | .. |
| 2330 .. | 0.25-0.35 | 0.50-0.80 | 0.040 | 0.045 | 3.25-3.75 | .. |

NICKEL-CHROMIUM STEELS.

| Number. | Carbon. | Manganese. | Phosphorus, maximum. | Sulphur, maximum. | Nickel. | Chromium. |
|----------|-----------|------------|----------------------|-------------------|-----------|-----------|
| 3120 .. | 0.15-1.25 | 0.30-0.60 | 0.040 | 0.045 | 1.00-1.50 | 0.45-0.75 |
| 3150 .. | 0.25-0.35 | 0.50-0.80 | 0.040 | 0.045 | 1.00-1.50 | 0.45-0.75 |
| 3230 .. | 0.25-0.35 | 0.30-0.60 | 0.040 | 0.045 | 1.50-2.00 | 0.90-1.25 |
| X3315 .. | 0.10-0.20 | 0.30-0.60 | 0.040 | 0.045 | 2.75-3.25 | 0.70-0.95 |
| X3330 .. | 0.25-0.35 | 0.45-0.75 | 0.040 | 0.045 | 2.75-3.25 | 0.70-0.95 |
| 3315 .. | 0.10-0.20 | 0.30-0.60 | 0.040 | 0.045 | 3.25-3.75 | 1.25-1.75 |
| 3330 .. | 0.25-0.35 | 0.30-0.60 | 0.040 | 0.045 | 3.25-3.75 | 1.25-1.75 |

CHROMIUM VANADIUM STEELS.

| | Chromium. | | | | Vanadium, Minimum. | |
|---------|-----------|-----------|-------|-------|--------------------|------|
| | 0.15-0.25 | 0.30-0.60 | 0.040 | 0.045 | 0.60-0.90 | 0.15 |
| 6120 .. | 0.25-0.35 | 0.50-0.80 | 0.040 | 0.045 | 0.80-1.10 | 0.15 |

When electric or crucible furnace steel is specified in the order, the maximum allowable percentages of phosphorus and sulphur may, at the option of the purchaser, be limited to 0.03 per cent.

3S16—Specifications for Iron or Steel Wire for Acetylene Welding.

GENERAL.—1. The general specifications, 1G1, shall form, according to their applicability, a part of these specifications.

MATERIAL.—2. (a) The material from which the wire is manufactured shall be made by any approved process. "Genuine Norway iron" will be accepted for the purpose.

(b) The iron or steel shall conform to the following chemical analysis: Carbon, not more than 0.08 per cent.; manganese, not more than 0.15 per cent.; sulphur, not more than 0.025 per cent.; phosphorus, not more than 0.02 per cent.

WORKMANSHIP AND FINISH.—3. The surface of the wire shall be smooth and free from scale and pits; rusty and scraped wire will not be accepted.

PHYSICAL PROPERTIES AND TESTS.—4. A dead soft wire is not desired. In order to detect wire of this kind, one to three samples shall be selected from each 10,000 (4,536 kgs.) or less submitted for inspection, and a test made for elongation on a gauge length of 10 ins. (254 mm.). When two or more samples show an elongation greater than 5 per cent. the wire shall be rejected.

DIMENSIONS AND TOLERANCES.—5. (a) All wire for this purpose shall have the size specified on orders in decimal parts of an inch or (millimetre). The wire shall be supplied, inspected and reported in the same manner.

(b) Great accuracy in gauge is not necessary, but no wire varying more than 3 per cent. plus or minus shall be accepted.

DELIVERY, PACKING AND SHIPMENT.—6. (a) Steel wire for use in acetylene welding shall be furnished in coils or straightened and cut to lengths as required.

(b) If not furnished in coils, the wire, straightened and cut to 36 ins. (914 mm.) length, plus or minus 1 in. (25.4 mm.), shall be packed in bundles weighing from 50 to 75 lbs. (22.68 kgs. to 34.02 kgs.) each and securely tied with two or more wire bands.

(c) All bundles shall be burlapped all over for shipment, and shall be marked with a metal tag containing the name of the manufacturer, the size, length of the contents, and the inspection mark.

INSPECTION AND REJECTION.—7. Inspection for gauge, finish, and chemical analysis shall be made on this wire before cutting it into straightened lengths. The wire shall then be cut to length, and subsequent optional check inspection may be made by the Government inspector at the plant of the manufacturer.

3S4—Specifications for Alloy Steel Bars and Billets.
(125,000 lb. per sq. in. Tensile Strength.)

GENERAL.—The general specifications, 1G1, shall form, according to their applicability, a part of these specifications.

MATERIAL.—2. The material for these bars shall be chosen from among the I.A.S.B. standard alloy steels listed below. The composition chosen shall be stated by the manufacturer or contractor and is further limited as follows: Carbon, not over 0.40 per cent.

MANUFACTURE.—3. (a) The steel shall be manufactured or at least finished by the open-hearth, electric furnace, or crucible process.

(b) A sufficient discard shall be made from each ingot to secure freedom from piping and undue segregation.

(c) The billets from which the bars are made are to be rough turned or chipped to remove all surface defects which might produce seams in the finished bar. No undercutting in chipping will be allowed.

Heat Treatment.—(d) The steel manufacturer shall state the heat treatment recommended to give the physical properties specified.

(e) If the bars are furnished in the heat-treated condition and the physical tests show that the heat treatment has not been correct, the bars may be re-treated at the option of the purchaser.

An Appeal for the Labour Battalions.

ONE of the splendid things of the war is the way in which the men of all ages up to 60 of the Labour Battalions volunteered for the important work of trench-digging, bridge-building, road-making, which is done, out of the limelight, behind the lines in France and at Salonica. Last year the

WORKMANSHIP AND FINISH.—4. (a) The bars are to be sound, commercially straight, free from pipes, laps, cracks, twists, seams and damaged ends, and are to have a workmanlike finish. They are to be uniform in quality, within the stipulated margins of manufacture, capable of being turned and threaded readily and of taking a good finish.

(b) Any article may be rejected because of injurious defects or faults in manufacture at any time, notwithstanding that it has previously passed the physical and chemical tests; it shall be returned to the manufacturer at the latter's expense. This clause shall not be taken to apply to materials fabricated after export.

PHYSICAL PROPERTIES AND TESTS.—5. (a) The bars shall have the following physical properties:

Tensile Test.—(b) Minimum tensile strength, 125,000 lb. per sq. in. (87.88 kg./mm.²); minimum yield point, 95,000 lb. per sq. in. (66.79 kg./mm.²); minimum elongation in 2 in. (50.8 mm.) (or proportional gauge length), 17 per cent.; minimum reduction of area, 50 per cent.

Impact Test.—(c) When impact-testing machines of the pendulum type are available, tests shall be carried out if required to determine the specific impact work of rupture in foot-pounds (or kilogram-metres). Results markedly lower than the average for this type of material will be sufficient cause for further investigation (or reheat treatment) of the material.

Selection of Test Specimens.—(d) Three bars of each size rolled from a heat shall be taken, and test pieces prepared in accordance with the I.A.S.B. standards. Each test piece and the bar from which it is cut shall be stamped with an identifying number. Should any of the test pieces, after being heat treated in the manner recommended by the steel manufacturer, fail to show the prescribed physical properties, new test pieces similarly identified shall be made from the same three bars. At the option of the purchaser the steel manufacturer may recommend a different heat treatment for the second set of test specimens, and to that end he may make such tests as he desires from the remainder of the three bars taken for the test. Should any of the three specimens taken for the final tests fail to show the required physical properties, the bars of that heat of the size represented by the specimens shall be rejected. When bars are purchased in the heat-treated condition, test specimens shall be cut from the heat-treated bar.

DIMENSIONS AND TOLERANCES.—6. The dimensions and tolerances shall be those given in the Specification 3S11.

DELIVERY, PACKING AND SHIPPING.—8. (a) The bars may be delivered in the annealed or in the heat-treated condition.

(b) The bars shall in general be grouped in bundles weighing not more than 250 lb. (113.4 kg.), unless otherwise agreed between manufacturer and purchaser. The heat number and the I.A.S.B. steel serial number shall be plainly marked on a metal tag attached to each bundle. If bars are not so grouped and bundled, each bar shall be plainly marked with the heat number and the I.A.S.B. steel serial number.

When electric or crucible furnace is specified in the order, the maximum allowable percentages of phosphorus and sulphur may, at the option of the purchaser, be limited to 0.03 per cent.

Chemical compositions of standard alloy steels.

NICKEL STEELS.

| Number. | Carbon. | Manganese. | Phos- phorus, maxi- mum. | Sul- phur, maxi- mum. | Nickel. | Chromium. |
|---------|-----------|------------|--------------------------------|-----------------------------|-----------|-----------|
| 2320 .. | 0.15-0.25 | 0.30-0.60 | 0.040 | 0.045 | 3.25-3.75 | .. |
| 2325 .. | 0.20-0.30 | 0.50-0.80 | 0.040 | 0.045 | 3.25-3.75 | .. |
| 2330 .. | 0.25-0.35 | 0.50-0.80 | 0.040 | 0.045 | 3.25-3.75 | .. |
| 2335 .. | 0.30-0.40 | 0.50-0.80 | 0.040 | 0.045 | 3.25-3.75 | .. |

NICKEL-CHROMIUM STEELS.

| | Carbon. | Manganese. | Phos- phorus, maxi- mum. | Sul- phur, maxi- mum. | Nickel. | Chromium. |
|----------|-----------|------------|--------------------------------|-----------------------------|-----------|-----------|
| 3130 .. | 0.25-0.35 | 0.50-0.80 | 0.040 | 0.045 | 1.00-1.50 | 0.45-0.75 |
| 3135 .. | 0.30-0.40 | 0.50-0.80 | 0.040 | 0.045 | 1.00-1.50 | 0.45-0.75 |
| 3230 .. | 0.25-0.35 | 0.30-0.60 | 0.040 | 0.045 | 1.50-2.00 | 0.90-1.25 |
| X3315 .. | 0.10-0.20 | 0.30-0.60 | 0.040 | 0.045 | 2.75-3.25 | 0.70-0.95 |
| X3390 .. | 0.25-0.35 | 0.45-0.75 | 0.040 | 0.045 | 2.75-3.25 | 0.70-0.95 |
| 3315 .. | 0.10-0.20 | 0.30-0.60 | 0.040 | 0.045 | 3.25-3.75 | 1.25-1.75 |
| 3330 .. | 0.25-0.35 | 0.30-0.60 | 0.040 | 0.045 | 3.25-3.75 | 1.25-1.75 |

CHROMIUM VANADIUM STEELS.

| | Carbon. | Manganese. | Phos- phorus, maxi- mum. | Sul- phur, maxi- mum. | Chromium. | Vanadium, minimum. |
|---------|-----------|------------|--------------------------------|-----------------------------|-----------|--------------------|
| 6130 .. | 0.25-0.35 | 0.50-0.80 | 0.040 | 0.045 | 0.80-1.10 | 0.15 |

(To be continued.)

fund which sends Xmas gifts to these battalions, and of which Viscountess Cowdray is President, received £1,005 6s. 8d., and the 8,741 men who received gifts were full of gratitude for this remembrance. It is proposed to send out gifts this year, and all who wish to help in the good work should send their donations to Mrs. Hopkinson, at 10, Victoria Street, Westminster, S.W. 1.

THE ROLL OF HONOUR.

Reported by the Admiralty:—

Previously Missing, now reported Killed.

Flight Sub-Lieut. F. Bray, R.N.
Acting Flight Commander G. G. MacLennan, R.N.

Accidentally Killed.

F9027 Acting Air-Mech., 1st Gde., G. W. Bickle.
F14688 P.O., Aircraftmn., T. C. M. Reardon.

Previously Missing, now reported Prisoner and Wounded.

Flight Sub-Lieut. E. D. Abbott, R.N.

Reported by the War Office:—

Killed.

Lieut. F. W. Best, M.G.C.
Lieut. H. W. Bowd, Aust. F.C.
2nd Lieut. S. B. Cragg, R.F.C.
2nd Lieut. C. S. Fuller, R.F.C.
Capt. C. H. Gimingham, Herts., attd. R.F.C.
2nd Lieut. N. S. Hyslop, R.F.C.
2nd Lieut. C. C. Morse, R.F.C.
2nd Lieut. E. W. Morris, R.F.C.
2nd Lieut. W. R. Murray, R.F.C.
Capt. J. A. Revill, Alberta, attd. R.F.C.
Lieut. W. A. Sewell, Border, attd. R.F.C.
2nd Lieut. S. L. H. Symonds, R.F.C.
2nd Lieut. M. S. West, R.F.C.
2nd Lieut. N. E. Williams, London, attd. R.F.C.
5859 Sergt. H. Clark, R.F.C.
50208 2nd Air-Mech. E. T. Rose, R.F.C.

Previously Missing, now reported Killed.

2nd Lieut. M. O. Baumann, R.F.C.
2nd Lieut. W. M. Carlyle, R.F.C.
Lieut. H. G. K. Cotterill, R.F.A., attd. R.F.C.
Lieut. J. Crafter, M.C., London, attd. R.F.C.
Lieut. G. W. Devenish, R.F.A., attd. R.F.C.
2nd Lieut. H. C. Duxbury, R.F.C.
Lieut. B. Evans, R.F.C.
Lieut. C. V. Gaultier, R. Lancs., attd. R.F.C.
2nd Lieut. J. V. A. Gleed, R.F.C.
2nd Lieut. C. H. Halse, R.F.C.
2nd Lieut. S. J. Leete, Worc., attd. R.F.C.
Lieut. D. R. C. Lloyd, R.F.C.
2nd Lieut. R. H. Lownds, R.F.C.
2nd Lieut. F. W. Rook, R.F.C.

Previously Missing, now reported Died.

Lieut. S. H. Allen, Cent. Ont., attd. R.F.C.
Lieut. A. W. Nasmyth, Alberta, attd. R.F.C.

Died of Wounds.

2nd Lieut. A. J. Ballantyne, R.F.C.
2nd Lieut. F. P. Galloway, R.F.C.
2nd Lieut. J. W. D. Needham, R.F.C.

Previously Missing, now reported Died of Wounds as Prisoners in German hands.

2nd Lieut. K. G. Cruickshank, R.F.C.
Lieut. C. R. Thomas, R.F.C.

Accidentally Killed.

Lieut. J. S. Robertson, Manit., attd. R.F.C.
Lieut. S. A. Rutledge, Sask., attd. R.F.C.

Previously reported Prisoner, now reported Died of Wounds as Prisoner in German hands.

Lieut. D. S. Wilkinson, R.F.C.

Died.

33235 1st Air-Mech. A. E. Shelley, R.F.C.

Previously reported Wounded and Prisoner, now reported Died whilst Interned in Switzerland.

Lieut. W. A. Harvey, Norf., attd. R.F.C.

Wounded.

2nd Lieut. E. B. Booth, R.F.C.
2nd Lieut. N. Conve, R.F.C.
2nd Lieut. A. V. Farrier, D.C.L.I., attd. R.F.C.
2nd Lieut. L. E. Gawthorne, R.F.C.
Lieut. W. J. E. Griffiths, Can. F.A., attd. R.F.C.

2nd Lieut. H. I. Hammer, R.F.C.
Lieut. B. Head, N'land F., attd. R.F.C.
2nd Lieut. K. G. P. Hendrie, R.F.C.
2nd Lieut. J. A. Higham, R.F.C.
2nd Lieut. R. H. Johnson, R.F.C.
2nd Lieut. H. T. Matthews, Yeo., attd. R.F.C.
2nd Lieut. D. C. Morrison, Aus. F.C.
2nd Lieut. C. D. Palmer, A. and S. Hrs., attd. R.F.C.
Capt. H. J. Petty, R.F.C.
2nd Lieut. H. A. Pickford, W. Yorks., attd. R.F.C.
Lieut. G. H. Pitt, Yeo., attd. R.F.C.
2nd Lieut. W. H. Statham.
2nd Lieut. C. E. Stewart, R.F.A., attd. R.F.C.
2nd Lieut. R. B. E. Turnbull, R.F.C.
Lieut. J. H. G. Womersley, R.G.A., attd. R.F.C.
43612 2nd Air-Mech. H. G. Collins, R.F.C.
31214 2nd Air-Mech. J. Crowder, R.F.C.
30198 2nd Air-Mech. C. W. Hart, R.F.C.
47208 Cpl. W. W. Runciman, R.F.C.
42130 2nd Air-Mech. H. Smith, R.F.C.

Wounded and Prisoners.

2nd Lieut. E. L. Fosse, R. War., attd. R.F.C.
Capt. R. T. Leighton, Yeo., attd. R.F.C.

Previously reported Prisoner, now reported Wounded and Prisoner in German hands.

2nd Lieut. W. E. Hall, Lond., attd. R.F.C.
2nd Lieut. W. B. Kellogg, R.F.C.

Wounded and Prisoner in Turkish hands.

2nd Lieut. E. A. Newton, Egyptn. Camel Corps, attd. R.N.A.S.

Missing.

Capt. E. E. Barnes, R.E., attd. R.F.C.
Lieut. E. D. S. Casswell, Rif. Brig., attd. R.F.C.
Lieut. F. R. C. Cobbold, R.F.C.
Lieut. G. A. Cockburn, Can. F.A., attd. R.F.C.
Lieut. J. H. Deans, Cent. Ont., attd. R.F.C.
Capt. F. A. Durrad, A.S.C., attd. R.F.C.
2nd Lieut. W. R. Kingsland, R.F.C.
2nd Lieut. H. L. C. McConnell, I.A.R.O., attd. R.F.C.
2nd Lieut. F. J. McCullough, R.G.A., attd. R.F.C.
Lieut. W. G. Meggitt, Welsh R., attd. R.F.C.
2nd Lieut. L. W. Middleton, R.F.C.
Lieut. K. S. Morrison, R.F.A., attd. R.F.C.
2nd Lieut. W. C. Pruden, R.F.C.
2nd Lieut. H. G. Robinson, R.F.C.
Lieut. D. H. Scott, M.C., R.F.C.
2nd Lieut. A. Thompson, R.F.C.
10018 2nd Air-Mech. T. H. Bury, R.F.C.
94294 2nd Air-Mech. W. Hewitt, R.F.C.

Previously Missing, now reported Prisoners in German hands.

2nd Lieut. G. W. Armstrong, R.F.C.
2nd Lieut. B. F. Braithwaite, R.F.C.
2nd Lieut. C. E. Carroll, R.G.A., attd. R.F.C.
Lieut. W. D. Chambers, Can. A.S.C., attd. R.F.C.
2nd Lieut. G. R. Edwards, R.F.C.
2nd Lieut. J. J. Fitzgerald, R.F.C.
2nd Lieut. R. S. Gilbert, R.F.C.
Lieut. R. F. Hill, A.S.C., attd. R.F.C.
2nd Lieut. T. V. Lord, R.F.C.
2nd Lieut. R. W. B. Matthewson, R.F.C.
2nd Lieut. M. Newcomb, R.F.C.
2nd Lieut. P. C. Norton, R.F.C.
2nd Lieut. M. A. Peacock, R.F.C.
2nd Lieut. R. H. Richardson, R.F.C.
Lieut. C. Smythe, M.C., Can. F.A., attd. R.F.C.
2nd Lieut. J. G. Stevenson, R.F.C.
2nd Lieut. F. W. Talbot, Worc. R., attd. R.F.C.
2nd Lieut. A. Taylor, R.F.C.
2nd Lieut. W. W. Vick, R.F.C.
2nd Lieut. A. A. Ward, R.F.A., attd. R.F.C.
2nd Lieut. H. S. Wellby, London, attd. R.F.C.
9253 Cpl. E. Marshall, R.F.C.
78930 2nd Air-Mech. F. J. Smith, R.F.C.

Correction:

Wounded.

2nd Lieut. S. St. K. Anderson, R.F.C., should read 2nd
Lieut. F. St. K. Anderson, R.F.C.

Promotion for Second Lieutenants.

AN Army Council instruction has now been issued embodying the decision that all 2nd Lieuts. if duly recommended shall be eligible for promotion to the rank of lieutenant on

completion of 18 months' commissioned service, if they have not previously been promoted to fill a vacancy. It will rest now and in the future with the commanding officer to recommend officers who have completed the qualifying period.

IN THE HANDS OF THE ENEMY.

THE following is an official list, published in Germany, of British machines which the Germans claim fell into their hands during the month of September, 1917:—

65 Sopwiths.

Single-seaters.

- No. B1795, Lieut. A. F. Bird, prisoner.
- No. B3917, Occupant dead.
- No. A7333, Lieut. F. W. Williams, prisoner.
- No. B1754, Occupant wounded.
- No. B3796, Occupant prisoner.
- No. unknown, Lieut. Harper, prisoner.
- No. unknown, Capt. C. Scharp, wounded.
- No. B3773, Lieut. I. C. Huggard, prisoner.
- No. B3928, Lieut. Seward, prisoner.
- No. C2229, Occupant unknown.
- No. B3875, 2nd Lieut. Ecerton B. Denison, prisoner.
- No. B3933, Lieut. Ed. Dickson Abbott, wounded.
- No. 2333, Lieut. Sen, prisoner.
- No. A8918, Lieut. Hammond, prisoner.
- No. B6250, Lieut. J. Wyman, wounded.
- No. A673, 2nd Lieut. Shadwel, prisoner.
- No. 3383, Occupant unknown.
- No. 3753, Lieut. McMichael, prisoner.
- No. CC17737, Occupant dead.
- No. A9208, 2nd Lieut. A. I. Chapman, dead.
- No. B6226, Lieut. S. H. Broughall, prisoner.
- No. A7321, 2nd Lieut. Ascher, dead.
- No. B3914, Lieut. Cooke, prisoner.
- No. B4857, W. Janson Potts, dead.
- No. B5150, 2nd Lieut. Ec. Stuart, prisoner.
- No. A9258, 2nd Lieut. G. R. Baynton, prisoner.
- No. B6279, Lieut. Edgar Foster, prisoner.
- No. B1826, Lieut. Noir Paton, dead.
- No. 6355, Lieut. Devilde, dead.
- No. unknown, Lieut. I. W. Boumptry, prisoner.

In the case of 23 Sopwith single-seaters the numbers of the machines and the names of the occupants could not be ascertained.

Two-seaters.

- No. 6242, Lieut. Sutcliffe, Lieut. Humble, both prisoners.
- No. B2571, Oxly (cadet), both occupants dead.

In the case of three Sopwith two-seaters the numbers of the machines and the names of the occupants could not be ascertained.

Triplanes.

- No. 5388, Occupant dead.
- No. 5429, Occupant prisoner.
- No. unknown, 2nd Lieut. Milliam, prisoner.
- No. 5459, Lieut. E. W. Desbarats, prisoner.
- Motor No. 143,461, Occupant dead.
- No. 5421, Lieut. Jacques Acester, prisoner.

In the case of one Sopwith triplane the number of the machine and the name of the occupant could not be ascertained.

13 Spads.

Single-seaters.

- No. 3102, Lieut. W. A. Spencer, wounded.
- No. 5399, Occupant dead.
- No. S1786, B3506, Occupant prisoner.
- No. S7 3557, Motor No. 346, 153/46, Occupant dead.

In the case of 8 Spads the numbers of the machines and the names of the occupants could not be ascertained.

9 R.E.'s.

Two-seaters.

- No. 4309, Sergt. Foulcham, wounded, 2nd Lieut. A. C. Gickett, prisoner.
- No. unknown, Heedy, name of other occupant unknown, both dead.
- No. A7530, Lieut. J. W. F. W. Neilli, Lieut. T. M. Webster, both wounded.
- No. A3597.
- No. A3617.
- No. A3862, Lieut. Hall, Lieut. Patric Casey, wounded.

In the case of three R.E. two-seaters the numbers of the



The King at the N.P.L.

A BUSY morning was spent by H.M. the King on November 23rd at the National Physical Laboratory, Teddington, and the instructional workshop in the Twickenham district. It was explained to the King that the workshop had been established to meet the serious shortage of suitable labour for the requirements of engineering firms for work of high standard, principally the construction of aeroplane engines. They were most successfully training, in a very short time, highly specialised workers. Aeroplane engines, in various stages of completion, were examined by the King, who took great interest in the measures taken to ensure dead accuracy. In spite of the difficulties it had been found

machines and the names of the occupants could not be ascertained.

10 de Havilland Scouts.

Single-seaters.

- No. A9435, Lieut. Robertson, prisoner.
- No. 9409, Occupant dead.
- No. A9410, Occupant dead.
- No. unknown, Lieut. Taylor, wounded.
- No. 9276, 2nd Lieut. I. L. Haight, prisoner.

In the case of one de Havilland 5 the number of the machine and the name of the occupant could not be ascertained.

Two-seaters.

- No. A7439, Lieut. E. T. Hearn, Sergt. Stanley, both dead.
- No. 7582, Lieut. Mackay, Lieut. Halliwell, both dead.

In the case of two de Havilland 4's the numbers of the machines and the names of the occupants could not be ascertained.

7 Nieuports.

Single-seaters.

- No. unknown, Lieut. C. Pickstone, dead.
- No. B3558, Occupant wounded.
- No. 3448, Lieut. Ed. Gtyzack, dead.
- No. A6721, Lieut. Grey, wounded.
- Motor No. 13040, Lieut. H. Rothery, prisoner.
- No. unknown, Lieut. Fenwick.

In the case of one Nieuport the number of the machine and the name of the occupant could not be ascertained.

6 Martinsydes.

Single-seaters.

- No. unknown, Lieut. S. H. Taylor, prisoner.
- No. A6251, Lieut. Skinner.
- No. 113, Occupant dead.

Two-seaters.

- Motor No. 1,190,511.
- No. A6287.

In the case of one Martinsyde the number of the machine and the names of the occupants could not be ascertained.

4 F.E.'s.

Two-seaters.

- No. 5627, Capt. Hetfeyld, Lieut. Macgregor, both wounded.
- No. A822, Lieut. L. A. Calbert, Lieut. J. Bushe, both prisoners.
- No. R510 G. F. West-Cott, E. Ellerbeck, both prisoners.
- No. unknown, Wattler, Gunner, both dead.

3 S.E.'s.

The numbers of the machines and the names of the occupants could not be ascertained.

3 B.E.'s.

Two-seaters.

- No. 7187, Lieut. Badson, Sergt. Roebuck, both dead.
- No. 22170, both occupants wounded.
- No. A7224, 2nd Lieut. Fitzgerald Patrick, prisoner. Name of second occupant unknown, wounded.

2 Fuselage Biplanes.

The numbers of the machines and the names of the occupants could not be ascertained.

1 Bristol Fighter.

- No. A7130, 2nd Lieut. Neil Josef Taylor, Lieut. G. W. Mumford, both wounded.

1 Avro.

- No. A211, Lieut. Thomas George Deason, 2nd Lieut. Georg Logt, both prisoners.

1 Morane-Saulnier.

- No. A234, 2nd Lieut. Golding, Leonhard Gozz, both dead.

3 English Aeroplanes.

- No. B782.
- No. A3976, single-seater, occupant prisoner.
- No. A 7210, George Tester, Capt. Campel, both dead.

4 English Aeroplanes.

The numbers of the machines and the names of the occupants could not be ascertained.



possible to teach girls to make and gauge important parts of aeroplanes to the thousandth of an inch.

At the N.P.L. the King, who opened the Laboratory in 1902, was received by the Director, Sir R. T. Glazebrook. His Majesty saw aeroplane parts being tested in the wind channel and witnessed the delicate operation of gauging the gauges. Towards the end of the visit the King was shown three similar looking bars of metal, one of ordinary steel, another of aluminium, and a third of a new and secret alloy. The third was not much more than a featherweight in comparison with the first, and it was explained that by a series of exhaustive tests and experiments an extraordinarily light metal had been produced which, in many of its attributes, was equal to the finest steel.

ANSWERS TO CORRESPONDENTS

[As a number of letters reach us signed with initials only, some of which do not give a complete address, we would point out that such communications cannot be dealt with in our columns. Full name and address, which will not be published, must always be given.—ED.]

Notice to Correspondents in General.

Applications for commissions in the Royal Naval Air Service should be addressed to the Director of Air Services, Admiralty, S.W. The necessary form and conditions of entry can be obtained from the Secretary of the Admiralty.

Applications for commissions in the Royal Flying Corps should be sent to the Director-General of Military Aeronautics, Hotel Cecil, Strand, W.C.

Those who wish to enlist in the R.N.A.S. should apply to the nearest naval recruiting station or to the R.N.A.S. Drafting Office, Crystal Palace, S.E. Skilled mechanics are taken whatever their army classification, but unskilled men are only taken if they are classified B1, B2, or C1.

Recruiting for the R.F.C. is closed for the time being, and any enquiries should be made to the Officer Commanding, Royal Flying Corps Depot, Farnborough.

Enquiries with regard to appointments in the A.I.D. should be addressed to the Chief Inspector, Aeronautical Inspection Department, Hotel Cecil, W.C. 2.

H. J. R. (Edmonton).—With regard to your queries it would not be advisable to discuss the pros and cons of the cases in print, except in a general way. We can scarcely believe that the buildings you refer to would form a sufficiently distinct target, certainly not in case 1. In case 2 it is just possible that the large building forming the centre of an open square with houses around it might be discernible from even a very considerable altitude, and by a hostile airman be taken for something different from what it really is. Generally speaking, however, we are inclined to think that your own assumption that he would take "pot luck" is correct. One thing we can assure you, it would be quite impossible for an airman to ascertain from the altitude at which he would be flying the exact nature of the building you refer to.

Lt. R. L. H. (R.N.).—The difference in head resistance of the two craft—an airship and an aeroplane—does not affect the question. Both would be affected to the same extent by a relative wind, assuming, of course, that sufficient time had elapsed before considering the case, thus giving both craft time to overcome inertia. On the face of it, it might be supposed that the craft with the larger resistance would be affected, by a head wind, for instance, to a greater extent than the other. This is not so, however, and the reason is that both craft are supported by the same medium. An absolutely steady wind of uniform velocity and direction is equivalent to, as far as its effect on aircraft is concerned, a dead calm. A parallel is formed by, say, a Dreadnought and a ship's dinghy. In this case the water is, of course, the supporting medium, and if sufficient time is allowed to elapse before examining the speed of the two craft—assuming that the air is dead calm, so as not to act more on the Dreadnought than on the dinghy, and also that the sea is calm—this will be found to be the same for both. The example is not perhaps quite parallel, since the aeroplane requires an initial velocity before being supported by the air, but this fact only tends to render the problem a little more obscure. It does not funda-

mentally affect the case. In practice, of course, the wind never is steady, and the two craft may therefore be affected differently.

W. R. (Barnes).—You will find pictures of the De Havilland tractor fighter in our issue of November 15th, 1917.

D. M. (Golders Green).—Your idea of carrying the exhaust pipes through the pilot's cockpit so as to heat it during cold weather is not, we believe, a new one but has been tried before. Unless great care is taken this arrangement is somewhat dangerous, in that it may, if an exhaust pipe is damaged by shell fire or machine gun bullets, cause a fire.

H. W. H. (W.O., R.F.C.).—We regret that we cannot from your description identify the machine. Surely you should be able to find out on the aerodrome.

Old Centralian.—So far as we are aware no information has been published as regards the effect of aspect ratio in its relation to biplane gap and efficiency. As you no doubt know, experiments have been carried out both at the N.P.L. and by M. Eiffel at his laboratory at Auteuil on the effect of aspect ratio on a monoplane surface; and also on the effect of varying the gap for a given chord. In these experiments, however, the span and chord of both planes were equal, and no data have been published of experiments on biplane combinations in which the top plane was of greater span of greater chord, or both, than the bottom plane. Nor are there, as far as we know, available data relating to the best gap for such biplanes. Experiments have no doubt been carried out, but the results have not been published on account of the war. Under the circumstances the best you can do is to make as shrewd a guess as possible, bearing in mind that the greater is the percentage of the total area formed by the top plane, the better is the efficiency. This will be obvious when it is remembered that the bottom plane is the one that suffers most in a biplane spacing, and that therefore the loss in efficiency is bound to be smaller in a combination in which the bottom plane forms one-third of the total than in one where it forms one-half, whether the difference in area is caused by greater span or greater chord.

H. L. (Pembroke).—"The Aeroplane Speaks," by H. Barber, contains a chapter on rigging, and will also be found to be full of valuable information on all matters relating to the aeroplane. A copy can be obtained from the offices of "FLIGHT," the price being 7s., post free.

B. D. (Marlborough).—We have no drawings of the Morane monoplane flown by Mr. Brock at Hendon, but scale drawings of another Morane monoplane were published in our issue of May 24th, 1913. A copy can be obtained from the offices of "FLIGHT." The price is 2s. 6d.

C. G. D. (Dover).—When the wing of an aeroplane moves through the air a certain amount of air escapes sideways over the wing tips. The consequence is that the outer portions of a wing give smaller lift than the centre portion. It will therefore, be realised that the longer a wing is in proportion to its depth of chord, the smaller are the end losses around the tip, and the smaller the percentage of the wing giving a smaller lift. This is the reason for the better efficiency of a wing with high aspect ratio. We are not allowed to give any particulars of the machine you refer to.

Sir Douglas Haig's Thanks.

In the special order of the day issued on November 25th by Field-Marshal Sir Douglas Haig, in connection with the capture "of the important Bourlon positions" it is stated "Infantry, artillery and aircraft have co-operated with the efficiency and complete devotion to duty in which they never fail."

Belgian Honours for R.F.C. Officers.

SECD. LIEUTS. JOHN ARTHUR HIGLAM, R.F.C., and Herbert Reginald Griffen, R.F.C., have been mentioned in the Belgian Order of the Day, and received the Croix de Guerre for having "each brought down an enemy plane while engaged on recon-

naissance work, and having taken most useful photographs" in connection with the recent operations of the Belgian Army.

British Honour for Greek Officer.

ANOTHER Greek naval flying officer has been awarded a British honour, the D.S.C., for bravery against the Turk. Sub-Lieut. Pantelef Psychas was acting as observer to Sub-Lieut. Argyropoulos, when the latter was killed while engaging an enemy aeroplane. Sub-Lieut. Psychas was himself twice wounded, and his machine fell into the sea. Despite his own injuries, he did all in his power to save his pilot. Sub-Lieut. Psychas was eventually rescued, and has now received the D.S.C. for his gallantry.

MAGNETO IGNITION.

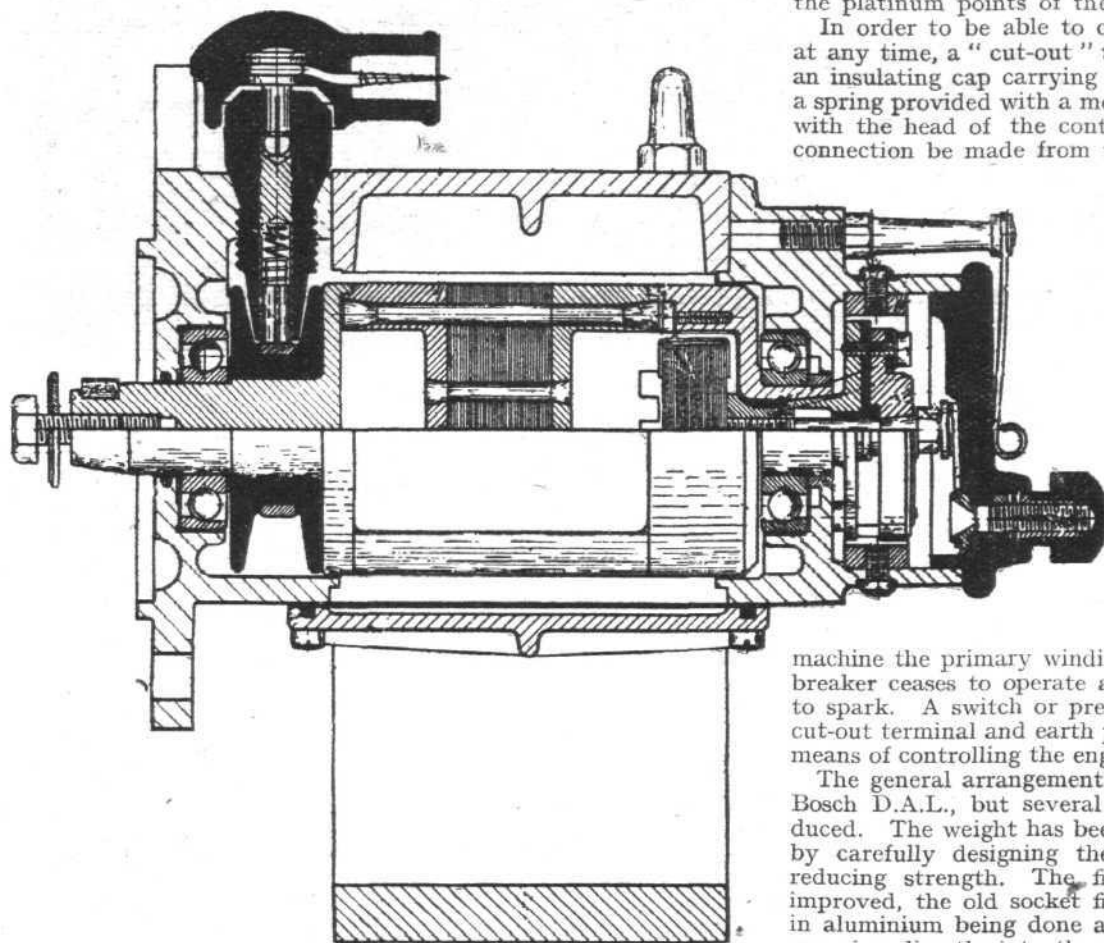
VIII.—THE M.L. MAGNETO (A.D.S. TYPE).

AMONG those who have successfully tackled the problem of supplying the great number of magnetos required for aero engines is the M.L. Magneto Syndicate, of Coventry. The A.D.S. type is designed for use on rotary or other engines in which the distributor is carried on the engine itself and does not form a part of the magneto. The arrangement of pole pieces and armature follows what might be termed orthodox

while the end is connected by means of the central screw clamping the contact breaker to the brass block mounted thereon. The secondary winding is connected at its inner end to the non-earthed end of the primary, while at its outer end it is connected to the slip-ring from which the current is picked up by the carbon brush.

A condenser is fitted in the armature and connected across the platinum points of the contact breaker.

In order to be able to cut the magneto out of operation at any time, a "cut-out" terminal is provided consisting of an insulating cap carrying a terminal to which is connected a spring provided with a metal or carbon pad making contact with the head of the contact breaker fixing screw. If a connection be made from this terminal to the frame of the



Cross section of the M.L. (A.D.S. type) magneto.

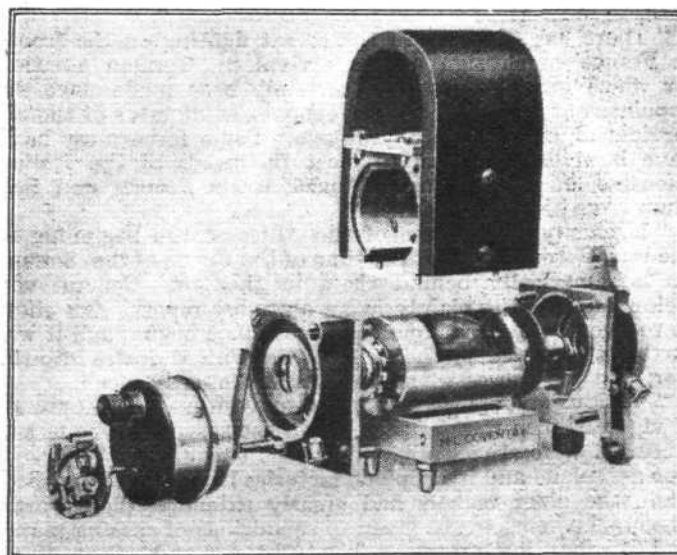
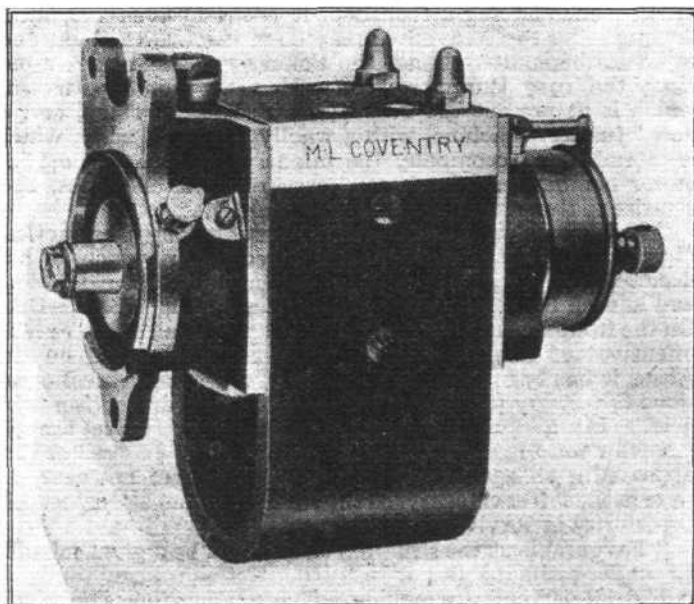
practice, and two revolutions are obtained for each revolution of the armature. On a seven-cylinder engine, therefore, the magneto is driven at $1\frac{3}{4}$ times the engine speed, while for a nine-cylinder engine it is $2\frac{1}{4}$ times the engine speed. It is not, however, recommended that the magneto should be driven at a higher speed of 4,000 r.p.m.; where this would have to be exceeded two magnetos should be used, and the number of sparks required divided between them.

One end of the primary winding is connected to the earth,

machine the primary winding is short circuited, the contact breaker ceases to operate and the machine therefore ceases to spark. A switch or press button connected between the cut-out terminal and earth provides in this way a convenient means of controlling the engine.

The general arrangement of the machine is similar to the Bosch D.A.L., but several improvements have been introduced. The weight has been kept down as much as possible by carefully designing the castings without in any way reducing strength. The fixing of the terminal has been improved, the old socket fitting half in gun-metal and half in aluminium being done away with, and the terminal now screwing directly into the gun-metal end. In addition, the cable connection has been made waterproof and more secure, so as to diminish any risk of the cable becoming detached while running.

One of the most important modifications, however, is in connection with the cams. The old Bosch design of flat cam, which gave rapid acceleration of the contact breaker arm, has been replaced by a cam made to a correctly-shaped profile which is ground out on machines specially designed and constructed for the purpose. As a matter of fact, the cams are ground from a continuous ring of steel, which enables absolute concentricity to be assured.



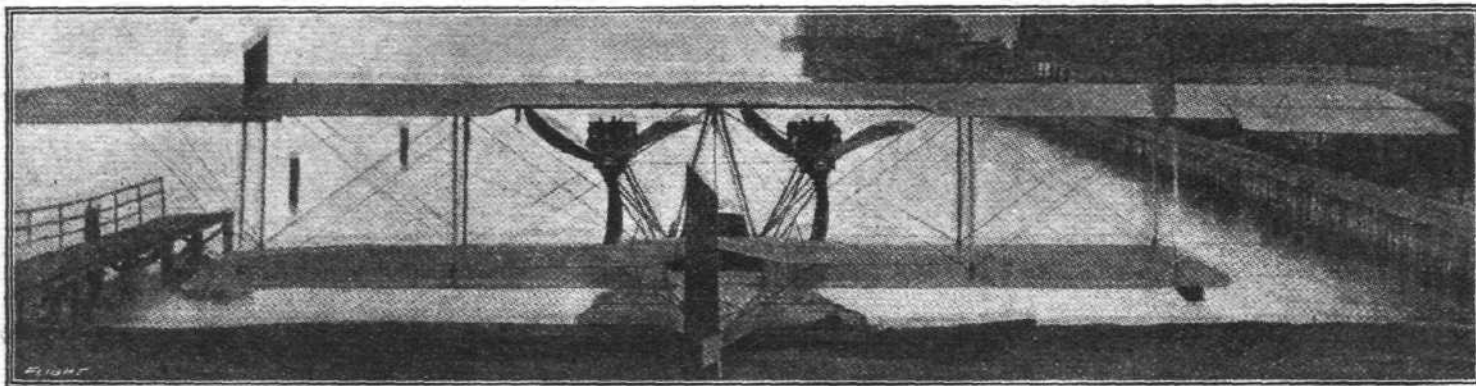
General view of the M.L. (A.D.S. type) magneto for rotary engines; and, on the right, the parts of the M.L. magneto disassembled.

FROM OTHER LANDS.

THE MARYLAND FLYING BOAT.

VARIOUS types of machines have been built by the Maryland Aeroplane Co., which was incorporated at Baltimore, U.S.A., last year, but they have specialised principally in flying boats. The accompanying illustration shows the latest four-seater twin-engined model flying boat, the most interesting

the bottom is of the double V type. Provision is made for four passengers, and dual Dep. control is installed. The power plant consists of two 8-cylinder E.N.V. motors, developing 90 h.p. each at 1,250 r.p.m. A radiator for each motor is situated at the forward end of the latter. The propellers are



Rear view of the Maryland twin-engined flying boat.

feature of which is the method of suspending the motors. By such a method, the motor suspension is independent of the wing structure, thus eliminating one of the principal objections to twin motors. The entire weight of the motors is directly transmitted to and carried upon the boat hull, making possible the employment of wing construction of the same lightness as used in single installations.

The hull has a beam of 46 ins., and an overall length of 32 ft. ;

three-bladed, 7 ft. 9 ins. diameter, with a pitch of 5 ft. 3 ins. The capacity of the fuel tanks is 40 gallons.

The general specifications are: Span, top 56 ft., bottom 42 ft.; chord, 5 ft. 6 ins.; gap, 6 ft. 6 ins.; angle of incidence, 7°; net weight, 2,200 lbs.; speed range, 38-65 m.p.h.

A single motored (75 h.p.) two-seater machine, quite similar in design, but smaller in proportion, is also being turned out by the Maryland Co.—*Aerial Age*.

AVIATION IN IRELAND.

THE recent article on Aviation in Ireland has aroused considerable interest in Dublin and steps are being taken, we understand, on excellent authority, to give effect to some of the proposals made. The Dublin Industrial Development Association had the matter before them at their meeting recently, and it is stated that something will now be done in the matter. Officials connected with the Industrial Department were, however, unable to make any statement. In the meantime advertisements are appearing in the Dublin papers for workmen for aerodrome construction in England, but, as it is pointed out here, workmen from Ireland, after paying munition prices for lodgings, can only send home a comparatively small sum each week, and the case is not improved by the publication of "family budgets" of such workmen showing that the family in Ireland is reduced to a diet principally consisting of bread and tea. Were such workmen employed in Ireland, the whole of their earnings

would be spent in the country, and the use of such money would provide still further employment. The argument that aircraft construction is only a war industry is met by the reply, which you are familiar with in England, that the war is showing the way to many unexpected peace time uses of aircraft, and in addition the new school of furniture designers, which has grown up round the work of a young Irish artist, make much of the fact that the wood-working machinery required for aircraft construction would be used to manufacture furniture of native design and manufacture for both the home and export trades.

Latest reports on the Irish flax crop state that saving of the crop was much interfered with by broken weather. Scutching has been somewhat delayed and yields are likely to be below the average. Some reports state that the quality will be good. Detailed estimates of yields may be expected in December.

GERMANY BEATEN IN THE AIR.

IN a despatch to the *Daily Chronicle*, Mr. G. H. Perris, the special correspondent of that paper with the French armies, sets forth the following opinions with regard to Germany's position in aviation:—

"There has not been in the recent fighting on the fronts in France much sign of the revival in German aviation for which great efforts have certainly been made since the appointment of General von Hoeppner as dictator of the air services of the empire a year ago. Some force must have been drawn away to meet the needs of the Italian offensive, and the losses of machines in France and Belgium have been very heavy.

"Markedly in advance of the Allies at the beginning of the war, Germany was at the time of the Battle of the Somme no less markedly behind them in this art. General von Below admitted it plainly in an alarming report. An effort to recover at least an equality was at once begun, and it was further stimulated by the entry of the United States into the war, and the fear of what that would presently mean.

"Various favours were accorded to aviators, and thousands of vigorous men were attracted into the service. The manufacturers were stirred up, and by the end of last August 30 new aeroplane and hydroplane factories had been established, while the older makers had greatly extended their works. The chief attention was given to squadrigas of chasing planes and bombarding groups. The Albatros and other types were standardised. The Gotha works at Erfurt received large orders, especially for their three-seater, double-motor bombarding plane.

"The best Benz and Mercedes motors were also standardised,

and the personnel of the hangars was enlarged, a squadriga of six planes having attached to it 100, and even 120, men. Among other types favoured may be mentioned the light and rapid Halberstadt-Rolland, the Fokker triplane, also a rapid riser, the 1917 Rumpler with a Mercedes 260 h.p. motor, which is at present the best German scouting plane, and a new 'Junker' machine, with a wholly metallic body, which is intended to accompany the infantry advance. The two-motor bombarding planes can carry 16 cwt. of bombs, and can rise to three miles' height in 40 minutes.

"The service enjoys such advantages as belong to a practical dictatorship. And yet the only direction in which it has decidedly scored is that of promiscuous slaughter in London, and in such French towns as Nancy, Dunkirk and Bar-le-Duc. On the front we maintain our superiority. In all of the French offensives of this year, particularly at Verdun and on the Aisne, it has been clearly shown, and on several critical occasions the enemy planes have been practically driven from the field. In a recent list of French 'aces,' there are 48 French names (37 of the men being alive and 11 dead or disappeared.), as against 57 Germans, of whom, however, 29 were in the latter category, so that our Allies had a considerable superiority in surviving champions.

"Favourable as the situation is, it would be a great mistake to under-estimate the efforts the German army and its industrial partners are making. The 100 machines per month destroyed by the French and those similarly disposed of by the British are far from neutralising the output of the German factories, and superiority in this essential arm of the modern battle cannot be pushed too far."

GIRISMS FROM THE FOUR WINDS

ALTHOUGH, speaking generally, the appointment of Lord Rothermere as the first President of the Air Council has come as a surprise, for several days before the official notification of the fact on Monday, it was evident what was "in the wind" from the work which the new P.A.C., with his proverbial energy and thoroughness, was putting in in connection with the new Air Force Department. From his preliminary survey the new Secretary of State must have already acutely realised that his office is not likely to be a sinecure. Fortunately Lord Rothermere has a very sound reputation for setting about having things done, the moment he has decided matters are not what they should be and he is likely to bring into his new sphere those "clearance" tactics which in his highly successful business career have proved so effective and have placed him at the head of huge interests in, comparatively, a fraction of a man's active life-time. There will be no waiting as (with ordinary luck) the Bill should be through the Lords and have received the Royal Assent this week.

As the brother of Lord Northcliffe—who has received the well-deserved dignity of a Viscounty of the United Kingdom—Lord Rothermere's interest in aviation must necessarily have been more than casual in the past years of the development of the Science.

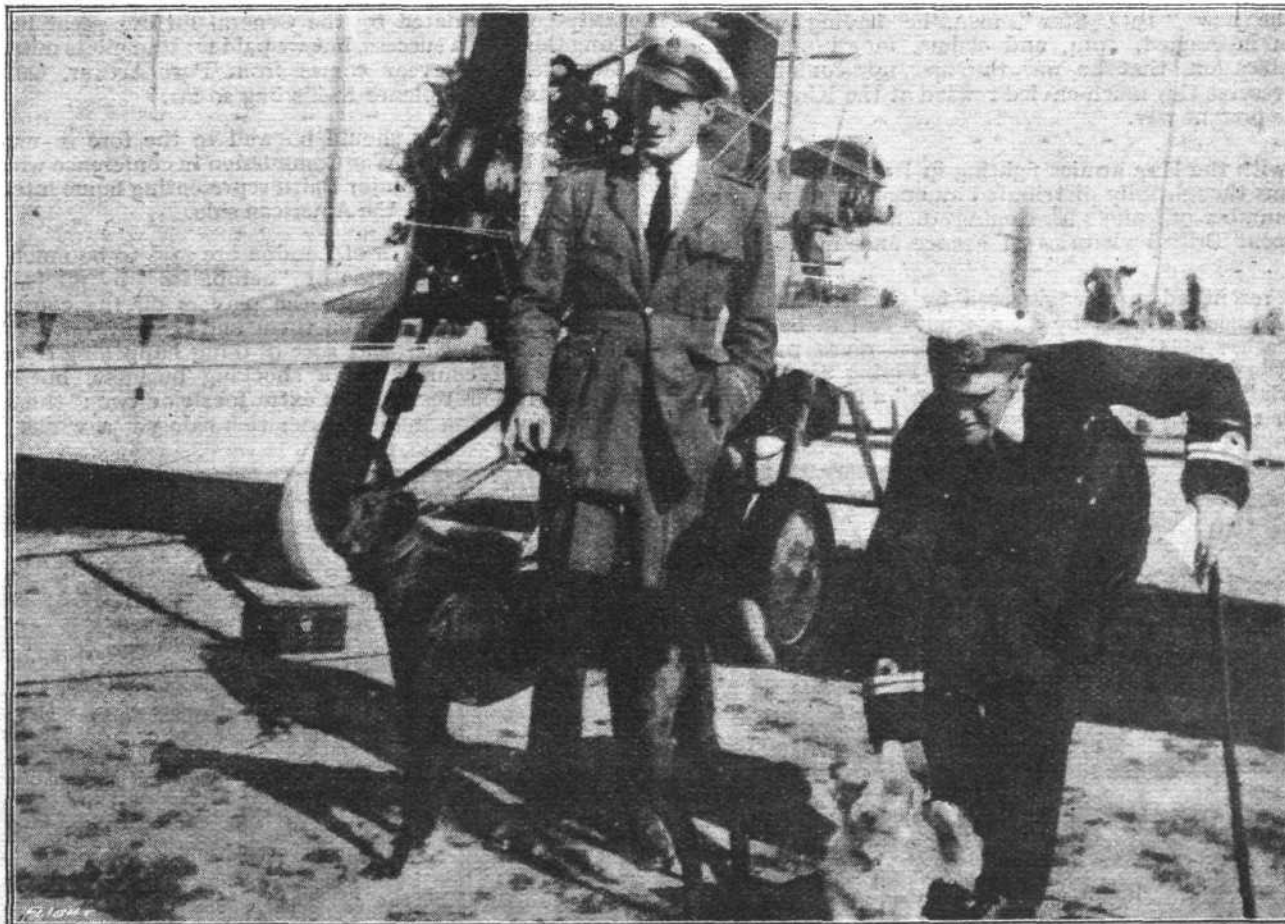
It is significant that Sir Alfred Mond, the First Commissioner of Works, has already scheduled a floor of the Strand Palace Hotel for Government requirements. This may well be the thin end of the wedge towards the entire structure in behalf of the Air Council and its ever-expanding requirements.

MORE and more are the King and Queen encouraging the aviation side of the war. Hardly a day passes but this Royal interest crops out in one direction or another. On Monday a very full programme was gone through, following a special visit on Saturday afternoon to the Royal Flying Corps Hospital at 82, Eaton Square. Particularly full of interest was the

tour by King George of the extensive works of Messrs. Gwynnes Ltd., where on all sides was evidence of the very old standing of this now modernised firm. It was a remarkable tribute to the adaptability of the expert workman to find men who had been with the house for 60 years or more, doing their share towards the equipment of so newly born a science as aviation. Yet this phenomenon was to be seen, whilst there was quite a number of these who had been in the one employ for over 30 years, away up to 47 or more years.

ANOTHER sign of the democratic and patriotic trend of the day was to be found in another section of the works. Here the King recognised a woman worker, Lady Victoria Bentinck, daughter of the Duke of Portland, who was busily employed side by side with Lady Sibell Pierrepont, Mrs. Brownlow, an ex-professor at Girton College, Miss Katherine Gwynne and Miss Mary Gwynne, daughters of the principal of the firm. It was quite apparent that these patriotic women were not there for sport or recreation; it was just full time as with the rest of the women employees, their meals being taken in the canteen and all the regular routine duties gone through in the ordinary course. Such examples may well set many a one thinking as to what *they* are doing personally to help to victory those on the other side who have the brunt of the war upon their shoulders. Mr. N. Gwynne, the Managing Director, who received the King should be well pleased with the result of the firm's efforts towards that end.

NEXT followed an inspection of the remarkable works of Messrs. D. Napier and Sons, Ltd., Acton way, where a guard of honour, formed by workmen of the establishment, was lined up for the King's visit, the royal party being also received there by the managing director, Mr. H. T. Vane, C.B.E., and other members of the firm. Again quite a unique incident varied the ordinary routine of the tour, when Corporal Jarvis, of the Royal Engineers, one of the men who the King noticed was wearing the V.C., was greeted by the royal visitor with



THE HANDLEY-PAGE BOMBER FLIGHT TO CONSTANTINOPLE.—On left: Flight-Commander Savory, D.S.O. and bar, who took part in this raid, with his greyhound mascot. On the right: Squadron-Commander Smyth-Piggot, D.S.O., with his mascot.



"Bully," who made his first aeroplane trip in 1913, and has since flown innumerable times with his master, Lieut.-Col. Halahan.

a shake of the hand and the remark, "I see we have met before."

The recognition was the more deserved as Corpl. Jarvis is one of the new "1914 Star" men, he having won his decoration in August, 1914, and claims, in all probability with justification, that he was the first non-commissioned officer to receive this much-envied reward at the King's hands during the present war.

News with the Hun armies fighting in Italy being scarce, the Italians thoughtfully distributed amongst them, per aeroplane, a number of leaflets heartening them with particulars of the recent British victories in France and in Palestine.

In the recent advance engineered by General Sir Julian Byng in France, air-work by all accounts had to be carried on in weather of the mistiest. The fact gives particular point to the full-page drawing of "Our Flying Services and their Work," which appeared in "FLIGHT" a fortnight ago—November 15th.

APROPPOS the suggestion of utilising the tunnel and cavern at Blackheath as an air raid refuge, a letter comes from Mr. G. W. Younger, in regard to its exact whereabouts not being known, to the effect that he well remembers more than fifty years ago there were some cottages at the back of Trinity Church on Blackheath Hill called "Cavern Cottages," which he then understood led to the entrance to the cavern, which had only comparatively recently been closed owing to the falling in of some of the earth at the entrance. "Cavern Cottages" was a narrow *cul-de-sac* immediately behind the church.

"If this should meet the eye of a sort of old navy chap," let him know that he has become a legendary Samson among our airmen. One of these dropped into a meadow to ask the way and learn that he was 40 miles from anywhere. "Being dead cold, I was glad to have a swing at the propeller, and with both hands I managed to give it a turn or two to show the way to a sort of old navy chap who had promised to give it a twist when I got back. I hopped up into my seat, and winked him the tip. Then, with one hand, he gave the 'prop.' such a buzz that he made it spin four times clean round! Marvellous! Away I went."—*The Daily Chronicle*, Office Window.

JUDGING by the profits recently announced by that great German industrial undertaking, the A.E.G. Co., now fully engaged on munition, particularly air-craft, work, the energy which is being put into the endeavour by the Central Powers to obtain the mastery of the air in the coming spring campaign is under, rather than over-rated. This net profit for the business year recently ended of £1,518,000 compares with £1,350,000 a year ago. A dividend of 12½ per cent. is declared. The directors claim that never in the concern's history were so many orders on their books—war business almost exclusively—while, of course, its productive capacity was never so big.

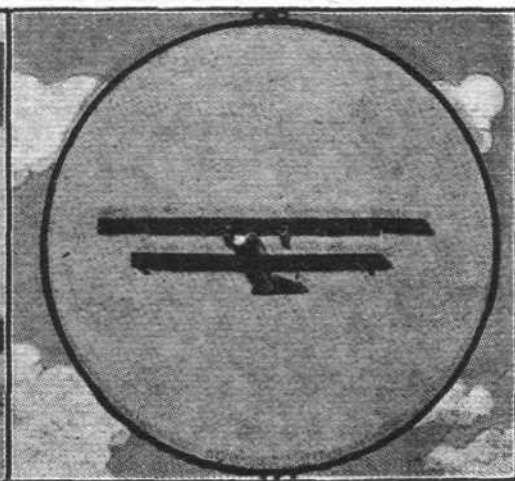
WHAT an airman feels like in a barrage is in some measure indicated in a letter just seen by "A Londoner" and written by Flight Lieutenant Stanley Rosevear, who was last week gazetted as having received the Distinguished Service Cross for destroying hostile machines and attacking and scattering parties of enemy infantry.

"I could not begin to explain what an awful hell a barrage is," Lieutenant Rosevear's letter runs, "At times I could not hear my own engine or my machine gun. Several times I distinctly saw large shells zipp past my machine. We were heartily congratulated by the General for our great help in making the push a success, but we paid for it in pilots missing."

Lieutenant Rosevear comes from Port Arthur, Ontario, and has six Boche planes to his bag so far.

AVIATION interests should be well to the fore in matters dealt with by the U.S. War Commission in conference with the British Government, Major Baird representing home interests, and Mr. T. N. Perkins, the American side.

GOLFERS in the North of London are said to be much perturbed by the introduction of "aerobatics" by pilots, who, so the clubbers state, chase the players off the course by swooping down almost upon them and then fly off. "Who could hit a shot with that sort of thing happening?" wails a golfer. Of course, it's a shocking business, but what matters if it does result in an extra fozzie or two: the Huns aren't out making up foursomes this side yet a while.



Two views of the twin Ford-motored Harley-Stromer hydro-biplane. It is said that in the 19 months the machine has been in use over 700 flights have been made. A new model is being constructed which it is proposed to sell for \$3,000 each.

THE proposal put forward by delegates from the National Union of Railwaymen in the London district recommending legislation to place railwaymen who are killed or injured during air raids on the same footing in the matter of pensions as sailors and soldiers, appears to be eminently a reasonable one, in view of the fact that in most cases they, at any rate, have little choice in the matter of carrying on or taking cover.

As recorded in last week's official notices of the Royal Aero Club, Mr. D. W. Thorburn has presented a large framed photograph of Captain Guynemer to the club. It is probably the latest portrait, as it is certainly the best existing, having been taken by the famous Parisian photographer, Nadar. By the way, Mr. Thorburn is setting a good example to other members, who might, by contributing in this way, make the Royal Aero Club the home of a unique and historic collection of photographs and pictures relating to aviation. There should be all the more inducement since the Club is housed in such comfortable and artistic premises.



Casualties.

Lieutenant G. BAKEWELL, R.F.C., who has died of wounds, was the only son of Mr. and Mrs. George Bakewell, of Warwick, and was on the staff of Lloyd's Bank at Leamington. He enlisted in the early days of the war, and while serving with the Warwickshire Yeomanry, so distinguished himself in a battle with the Senussi that he was given a commission, being gazetted to the Border Regiment, with which he had seen much service on the Western front. Recently he was transferred to the R.F.C., and having won his wings, returned to the front about three weeks ago.

Lieutenant FRANK B. BEST, A.S.C., attached R.F.C., was reported missing on July 29th, after a fight in which he was overtaken by a severe storm. Later he was reported in a German newspaper to have been found dead in his machine. He joined the A.S.C. at the outbreak of war, obtained his commission in August, 1914, and went to France in February, 1915, with the first Territorial division to go to the front. In 1916 he went to Ireland when the rebellion broke out, and was afterwards transferred to the R.F.C. He quickly obtained his wings, and was sent to the front again last June. He was educated at Bedales School, Petersfield, and later spent 18 months in Düsseldorf and Paris. He was a director of Best and Lloyd (Limited). He took a keen interest in adult school work for men, and had a class at Nelson Street School. His elder brother is serving as a pilot in the R.F.C. He was the younger son of Mr. and Mrs. Robert Hall Best, of Handsworth, Birmingham.

Flight Sub-Lieutenant FRANK BRAY, R.N., who was reported missing on July 15th, 1917, is now officially reported killed in action on that date. He was the eldest son of the late John W. Bray, of the Hall, Scalby, Scarborough, and of Mrs. Bray, of "Woodlea," Shadwell Lane, Leeds. He was educated at Orleton, Scarborough, and Oundle. Leaving school at Christmas, 1916, he joined the R.N.A.S. last January, and after training in England went to the front on June 18th. In his last aerial fight on July 15th, he was one of a patrol, and in a general engagement with the enemy was seen to go down behind the German lines. He was aged 18 and 9 months.

Captain BRYAN GROGAN LANGLEY ELLIS, R.F.A., attached R.F.C., who was killed on October 13th, in his 21st year, was the younger son of Mr. and Mrs. Langley Ellis, of 3, Addison Gardens, Kensington. He was educated at Eastbourne College and Elizabeth College, Guernsey, for both of which he shot at Bisley for the Ashburton Shield. On leaving college he joined the Guernsey Militia (Artillery), and after six months was gazetted lieutenant, R.F.A., and was sent to France in May, 1915. After serving with the artillery for 18 months he was attached to the R.F.C., and last June was promoted captain.

Second Lieutenant CHARLES STEPHEN FULLER, M.C., R.F.C., only son of Mr. and Mrs. Sydney Fuller, of Hobart, and grandson of the late Charles Davis, of Tasmania, was on his way to

TEN YEARS AGO.

Excerpts from the "Auto." ("FLIGHT's" precursor and sister Journal) of November, 1907. "FLIGHT" was founded in 1908. FLYING IN FRANCE. MR. HENRY FARMAN'S RECORD.

On Saturday, the 9th inst., Mr. Farman made, after a number of preliminary tries, the marvellous record of flying for 1 min. 14 secs. at about three metres from the ground, over an estimated distance of 1,036 metres, during which he succeeded in making a complete turn, returning to within about 40 metres of the point at which he started. Subsequently Mr. Farman gave a series of "exhibition" flights, executing several curves, first to the right, then to the left, at will, demonstrating beyond question his complete power and control over his huge winged machine, engined as before with his very reliable 50 h.p. Antoinette motor.

THE BLÉRIOT AEROPLANE.

M. Louis Blériot, urged on no doubt by the success of Mr. Farman, has also resumed experiments with his new machine, and although his efforts pale before the splendid achievements of Mr. Farman, his attempts at flight give greater promise of success than did his first machine.

Europe for a holiday tour when war broke out, and on arrival in London enlisted as a private in King Edward's Horse. He served two years in France with his regiment, and was given a commission in 1916 in the Manchester Regiment. He was wounded last January, and was awarded the Military Cross. He rejoined his regiment in April, but, being anxious to return to the front, and finding he could never hope to march again, he applied to be transferred to the R.F.C. He was killed on November 11th, in an air offensive.

Captain CHARLES HENRY GIMINGHAM, Herts. Regiment, attached R.F.C., who was killed in action on November 9th, was the youngest son of Mrs. Mary Christmas, of Harpenden, Herts, and of the late Charles Henry Gimmingham.

Lieutenant T. J. KELLY, I.A.R.O., who was officially reported killed in action on November 7th, 1917, aged 28, was the eldest son of Mr. E. Kelly. Lieutenant Kelly was attached to the 16th Lancers and temporarily in charge of the heavy transport of the R.F.C. in Mesopotamia. Later he was attached to the R.F.C., and qualified as a flying officer. After a time he returned to the cavalry, as a special service officer, and had served in Egypt and Palestine. He had an extensive knowledge of native Indian dialects, and spoke six of them. While stationed at Basra he wrote a primer on Arabic, in English, which has proved most useful to British officers serving with the Indian Forces.

Second Lieutenant HENRY LESLIE MARVIN, R.F.C., previously missing, now reported killed in action on October 16th, while flying abroad, was the youngest son of Mr. and Mrs. H. W. Marvin, Coulsdon, Surrey. He was aged 22 years.

Second Lieutenant CHRISTOPHER CHARLES (KIT) MORSE, R.F.C., who was killed in action on November 14th, 1917, in his 19th year, was the youngest son of Mr. and Mrs. George H. Morse, Thorpe St. Andrew, Norfolk.

Second Lieutenant WILLIAM SPENCER FITZROBERT SAUNDBY, Yorkshire Regiment, attached R.F.C., who was reported missing on November 17th, 1916, and now presumed killed, was the youngest son of Dr. and Mrs. Saundby, of 68, Hagley Road, Edgbaston.

Lieutenant WILLIAM ALLAN SEWELL, Border Regiment, attached R.F.C., formerly of Keble College, Oxford, who was killed in action on November 12th, aged 23, was the youngest son of the Rev. T. J. and Mrs. Sewell, of Lynsted Vicarage, near Sittingbourne.

Second Lieutenant JOHN PATRICK WATERS, R.F.C., who was killed in action on November 18th, aged 18, was the only child of Brigadier-General W. H.-H. Waters, C.V.O., C.M.G., and Mrs. Waters.

Captain CHARLES WILLIAM BRUCE ("MIKE"), Gordon Highlanders, attached R.F.C., who was accidentally killed while flying in Essex on November 22nd, was the younger son

of Mr. and Mrs. Archibald Bruce, and grandson of Sir Walter Smythe, Bt., of Acton Burnell Park, Shropshire.

Flight Sub-Lieutenant REGINALD DENNIS CLIVE, R.N., elder son of Mr. and Mrs. H. R. Clive, Fieldgate Lawn, Kenilworth, died, as the result of a flying accident, at Edinburgh, on November 10th, aged 19. He was educated at Arden House School, Henley in Arden, at Repton School, and was a member of Caius College, Cambridge. His superior officer writes:—"From what evidence I have been able to get, he appears to have sacrificed his life in order to avoid injuring some lads who were playing in the field in which he was landing."

Second Lieutenant JOHN HEPBURN RUSSELL, who was killed in an air collision at Wallington, Surrey, on the 12th inst., was the son of the late John Russell, banker, Glasgow. Educated at Glasgow High School and University, he graduated B.Sc. "in absentia" whilst at the Dardanelles. Before joining the R.F.C. he was a naval machine gunner, and won the conspicuous gallantry medal at the Cape Helles landing, at the same time being badly wounded. He also fought against the Senussi in Egypt in the R.N. Armoured Car Division.

Married.

Captain DONALD CAMPBELL, R.F.C., only son of Mr. and Mrs. MILLER, Birmingham, was married on November 14th, at St. Barnabas' Church, Cambridge, to HILDA, elder daughter of Dr. and Mrs. BURN, Cambridge.

On November 13th, at St. Mark's Church, Purley, Captain ERIC BARNES MASON, R.F.C., second son of the late Mr. W. L. Mason, F.R.I.B.A., of Skelgarth, Ambleside, was married to ALICE PAULINE, daughter of Mr. G. A. RIGGALL, Ulceby Grange, Alford, Lincs.

On November 19th, at the private chapel of Eden Hall, Edenbridge, Flight Lieutenant W. A. MEADE, was married to VERA, eldest daughter of Lieutenant Count and Countess RICCARDI-CUBITT.

On November 19th, at the Brompton Oratory, Second Lieutenant JOHN McDougall Musson, R.F.C., elder son

of Mr. and Mrs. J. T. Musson, of Teignmouth, South Devon, was married to MOYA, only daughter of Mr. and Mrs. W. H. HUTTON, of 3, St. Andrews Road, West Kensington, W.

To be Married.

A marriage has been arranged and will take place at St. James's Church, Piccadilly, on December 4th, at 2.30, between Lieutenant CHARLES TOM S. MENDEL, Devon Regiment, and R.F.C., elder son of Mr. and Mrs. S. F. Mendl, of 17, Hyde Park Street, W., and BERYL ALTHEA (BETTY), younger daughter of the late R. C. THOMAS, of The Court, Merthyr Tydfil, and of Mrs. J. Baker White, The Cottage, Shaldon, Devon.

The engagement is announced of Captain IAN MCALISTER MOFFATT PENDER, Seaforth Highlanders and R.F.C., youngest son of Mr. and Mrs. John Pender, Onich, Great Bookham, Surrey, and LORNA LEDLIE, younger daughter of the late WILLIAM PURVES SMITH and of Mrs. Smith, of Ravenswood, East St. Kilda, Melbourne, Australia.

An engagement is announced between Captain RUPERT C. G. SOMERVELL, 60th Rifles, attached R.F.C., only surviving son of Mr. and Mrs. Geldred Somervell, of Haseley Manor, Wallingford, and OLIVE WINIFRED, younger daughter of Mr. and Mrs. ALFRED NAYLOR, of 16, Southwell Gardens, S.W.

The engagement is announced of WALTER KEMEYS FRANCIS GOODALL WARNEFORD, Flight Commander, R.N.A.S., son of Mr. and Mrs. Walter Warneford, of Landsdowne House, Huyton, Lancs, to PANSY GRAHAME CHAMBERS, daughter of Captain W. Grahame Chambers, late Gordon Highlanders, Canada, now Lieutenant-Commander, R.N., and of Ardmay, Arrocha.

An engagement is announced between Lieutenant FRANCIS WHITWORTH WRIGHT, R.F.C., son of the late John Hodgson Wright, of Halifax, Yorks, and JOYCE MARGARET, second daughter of Dr. and Mrs. H. MORLEY FLETCHER, 98, Harley Street, W. 1.



Aircraft Workers' Wages.

It is stated that wood workers employed in the aircraft industry have applied for a national advance of wages, which would apply to all establishments in the British Isles.

M.P.'s Work for R.F.C.

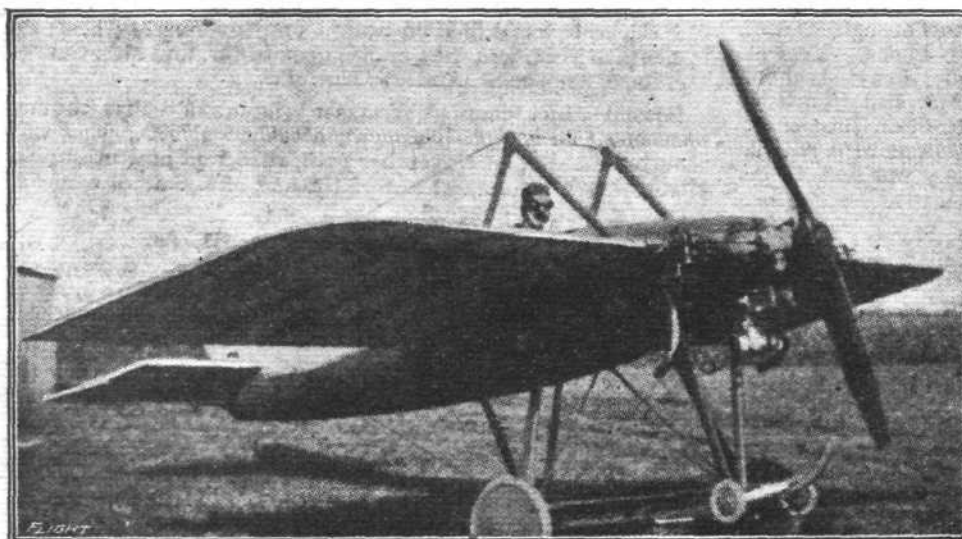
MR. G. C. HAMILTON, who represents Altrincham, Cheshire, in the House of Commons, has informed his constituents that he is unable to deal with any division matters, as he is taking up the organisation of the work of the R.F.C. in France, and will be away for some time.

To Assist the R.N.A.S. Comforts Fund.

SINCE it was founded at the beginning of the war by Mrs. Murray Sueter, who remains its President, the R.N.A.S. Comforts Fund has accomplished splendid work in attending to the comfort of the ranks and ratings in the R.N.A.S. When the fund was founded the R.N.A.S. was a comparatively small affair, but the fund has managed to keep pace with the rapid growth and extension of the Service. They would, however, appreciate assistance from a wider circle, and an

opportunity to give substantial aid will occur on Sunday afternoon, December 2nd, when a concert in aid of the Fund will be given, under the direction of Mrs. Adair, in the Wigmore Hall. A splendid programme has been arranged, so it is hoped the hall will be filled, not only helping to refill the coffers in view of the winter work of the Fund but also to encourage the workers to go forward with their labours which are so much appreciated by the men. Tickets can be obtained from Mrs. Adair, 37, Emperor's Gate, S.W. 7, and the Box Office, Wigmore Hall.

Apart from the concert, an appeal has been issued on behalf of the Fund for further support, and it is hoped that it will meet with a ready response from many who have not hitherto helped on the good work. It is hoped especially that relatives of officers in the R.N.A.S. will assist not only in kind but also in making the claims of the Fund more widely known. They will be able to obtain facilities for doing this by putting themselves in communication with the Hon. Secretaries at 25, Victoria Street, S.W. 1.



(Courtesy "Aerial Age,"
U.S.A.)

The Breese - Penguin
monoplane, which has
been constructed in
America for school
work at the Plattsburg
Camp, N.Y.

THE AIR FORCE BILL IN PARLIAMENT.

On November 16th the Air Force Bill, as amended, came up for third reading.
Mr. Speaker: I have some doubt as to the first new clause, standing in the name of the hon. and gallant member for Rutland (Col. Gretton)—(*Air Council not to order or conduct warlike operations*). That is the very object of the Bill, I should think, and this seems to be a negative of the whole Bill.

New Clause.—(*Air Council not to order or conduct warlike operations.*)
The Air Council shall not order warlike operations or make war by itself, but the Air Council shall transfer and attach to the naval and military forces of the Crown such corps, units, officers and men of the Air Force as may be determined in consultation and agreement with the Board of Admiralty or the Army Council, or both of them, and the Board of Admiralty and the Army Council may attach and transfer such corps, units, officers and men to any part of the Force subject to their orders, respectively.—(*Colonel Gretton.*)
Brought up, and read the first time.

Col. Gretton: I beg to move, "That the clause be read a second time."
I wish to explain to the Committee that the two clauses standing in my name are part of the same subject. Very late on the Committee stage it was explained to the Committee that the duty of the Air Council will be to supply and hand over to the command of the Army and Navy, as the case may be, all the aircraft which is required for the conduct of naval and military operations, but there is a third question still remains which has not been definitely explained to the House. The Air Board has hitherto been a Board of Supply only, but the Army Council is to provide machinery and undertake the training of personnel as well as the supply of apparatus. So far there has been no criticism offered on that principle. The Air Council under this Bill, as it now stands, will have power to order warlike operations and undertake them independently either of the Army or the Navy, and it is a matter upon which I desire, if possible, to obtain some information from the Government. I put before the Committee arguments which I think will not be refuted and cannot be, that one of the main principles which leads to success in war is unity of command, and that violation of that principle always leads to weakness in the conduct of war, if not to disaster.

I am not going to discuss strategy or tactics, but so far as the principle of command is involved in naval and military operations, that is provided for by the explanation given by the Government. It will be the duty of the Army Council to provide all that the Army and Navy require. The Government have not yet explained whether the whole of the Air Service in every part, including the Anti-Aircraft Service, is to be handed over to the Air Council. The point which arouses apprehension is that a third command is intended to be established by this Bill.

Mr. Billing: I beg to second the amendment. If this proposal was carried out it would defeat those purposes of the Bill which are beneficial to the Service.

Mr. Speaker: The hon. member has just given a very good reason why this amendment is out of order, and I must decline to put it. The other new clauses, standing in the name of the hon. member for East Herts (Mr. Billing), should come as amendments, but not as new clauses.

Clause 1.—(*Raising and Number of Air Force.*)

Mr. Billing: I beg to move, after the word "the," to insert the word "Imperial."

I am encouraged to move this amendment by the remarks of an hon. member which indicated that there is an idea in the mind of the Government to eventually include on the Council of the Air Service representatives from overseas. There are people in this country who resent the word "Imperial," but I am suggesting it in connection with this Bill in the sense of the unity of the Empire and quite distinct from any other meaning which may have been attached to it.

When this Air Service develops, as it must, it will be absolutely essential that we should have bases throughout the Empire. It may be suggested that these bases should be organised by the Dominions themselves, but we shall have to use them not only for our fighting forces but also in peace time, because it will be impossible to keep up the establishment of a vast number of airmen in peace time unless they are given something to do.

Col. Sir Hamar Greenwood: I beg to second the motion, and it is so seldom that I find myself in accord with the hon. Member that I do it with special pleasure. I second it primarily because the Air Service is, in fact, an Imperial Air Service.

The Parliamentary Secretary to the Air Board (Major Baird): This amendment obviously commands the greatest possible sympathy; but there is this difficulty, that, in order to accept it, it will be necessary to consult the Dominion authorities, and we have not been able to do so.

Sir H. Greenwood: What! In order to use the word "Imperial"?

Major Baird: Yes, the military forces of Canada and Australia are practically autonomous. Australia has got its own pilots. Canada, it is true, has not; but I know, from personal experience, that there is a great desire for a Canadian squadron. It is quite easy to understand that the men of those great Dominions would like the deeds of their fellow citizens to be identified with the Dominion from which they come. That does not in the least dispose of the very desirable view put forward by the hon. member who moved this amendment, that we should unify the whole of that Service just as we desire to unify the Service as it applies to Great Britain, by abolishing the imaginary high-water mark which at present unnecessarily divides the airmen operating with the naval and military forces. It is impossible to controvert the desirability of including the Dominions, but I hope the amendment will not be carried, because, although we are entirely sympathetic, we are really not in a position to take them over, and if it were pressed it might lead to misunderstanding.

Amendment negatived.

Mr. Billing: I beg to move to leave out the word "Force," and to insert instead thereof the word "Service."

The term "Air Force" is an unhappy one, because it does not roll easily off the lips and its initials do not help in any way. I should like to qualify the suggestion that this body is to be purely a force. It is rather more a service than a force. It is a service which, I hope, is going to bring victory to our arms. I do not know of any other means of getting it in the present condition of the world. After the war I trust it is going to be a force in a punitive sense only, and that it will be more of a service to mankind than a force for the purpose of making war. Although the aeroplane itself is the most punitive weapon that has ever been placed in the hands of man to wield, it is also, from that very cause, most likely to bring to this world universal peace, because the only way to keep people quiet, whether it is an individual or a collection of individuals, or a collection of nations, is to have in one's hand a punitive weapon by which to exert authority in the interests of justice and peace.

Mr. Lynch: I beg to second the amendment. My hon. friend has often good ideas, and in this deserves encouragement.

Major Baird: I did not feel sufficiently impressed by the amendment to think it worth while to change the title of the Bill. This is essentially a force that we propose to raise. We hope it will be a very formidable force. The hon. member (Mr. Billing) referred to the existing Royal Naval Air Service and the Flying Corps. Both these are very good names. Now that we have taken over both of them, either would have just cause to resent it if you gave the united force the name of the other. These are little things which people have to pay attention to. It appeared more reasonable to adopt a

name which is not in use by either branch of the Air Force at present and to call it what it really is, an Air Force. I trust the amendment will not be pressed.

Mr. Billing: I do press it.

Question put, "That the word 'Force' stand part of the Bill."

The House divided: Ayes, 90; Noes, 0.

Clause 2.—(*Government, Discipline and Pay of Air Force.*)

Mr. Speaker: The next two Amendments on Clause 2, standing in the name of the hon. member (Mr. Billing), dealing with distinctive uniform and designation of rank, are covered by the Bill.

Mr. Billing: So far as my amendment is concerned for the institution of a distinctive uniform, there is nothing in the Bill which states that this is going to be done, and the amendment is put down purely for the purpose of endeavouring to elicit from the Front Bench an undertaking that this will be done.

Mr. Speaker: I have already ruled that out of order as it is covered by the Bill.

Clause 3.—(*Transfer and Attaching to Air Force of Members of Naval and Military Forces.*)

Mr. Billing: I beg to move, in sub-section (1), to leave out the words "may, with his consent and subject to the approval of the Admiralty or Army Council (as the case may be), be transferred by the Air Council to the Air Force, or attached by the Air Council to the Air Force for the period of the present war or for a period not exceeding four years," and to insert instead thereof the words "who was not serving as a member of His Majesty's Forces prior to the fourth day of August, nineteen hundred and fourteen, may be transferred or attached by the Air Minister to the Air Force for the period of the present war. Any officer, warrant officer, petty officer, non-commissioned officer or man who was so serving His Majesty before the fourth day of August, nineteen hundred and fourteen, may be attached, but shall only be transferred to the Air Service at his own request."

This is a most important amendment. As the Bill stands, it provides that any officer or man may be taken from the present Air Services with his consent and transferred into the new Air Service. In this matter I feel more particularly for the officers concerned, because this is a force where officers are employed to a far greater extent than in any other force, in view of the fact that at the present time practically all the pilots are officers.

The Air Service, above all the other things that we are forming, is a permanent institution, and the fewer officers we have attached to it the better for its efficiency and the better for its subsequent work. If we are going to fill all the important posts by attaching officers from the respective Services to those posts we shall have, and quite rightly, a very considerable feeling of dissatisfaction among those other officers who, instead of being attached, have decided definitely to transfer. I do not consider that it is either in the interests of efficiency or in the interests of the Air Service or the interests of the war itself that the question of attachment should be considered. I think it is a most unfortunate thing in forming a new force to lend for a certain period officers from another Service. They naturally take all the superior posts—otherwise why attach them?—and in that case there is no feeling of security, and there is no feeling that there will be any continuity in the position of any man in that force. If, on the other hand, we had no men with whom to form the nucleus of this force, if there were no volunteers and nobody anxious to create a force of its own with its own *esprit de corps*, with its own individuality, I think it is a mistake to trouble the House. The object of the Bill is to create a new Service with its own uniform, and with its own distinctive institution, quite apart from either the naval or military forces. To that end we want men who will throw in their fortunes in this new Service, for better or worse, and who will not always have operating in their minds the question, "Shall I like it? If not, I will go back."

Another important point. The Bill as it is framed gives the Army and Navy respectively the right to refuse to the Air Service any man whom they do not want to lose. In my opinion, neither the Army nor the Navy has a right to refuse to the Air Service to allow any man who is a direct entry man to transfer to the new Air Service. The very fact that he was a direct entry man proves that he entered the Air Service and not the Army or Navy, and for the Army or Navy to refuse to allow him to go to the Air Service, if it is taken from the Army or Navy, is going to produce endless confusion and delay. Why should this Bill provide that the permission must be obtained before men can transfer?

Mr. Lynch: I beg to second the amendment. I think my hon. friend is right.

The Under-Secretary of State for War (Mr. Macpherson): The whole point of this amendment is to introduce a system of compulsion, because it makes an express difference between men who have enlisted in the Service since 1914, namely, the men of the New Army, and the men of the Old Army, who enlisted before 1914. Since the beginning of the war, however, the Army has been effectively one, and it is rather late in the day to introduce a distinction between the New Army men and the Old Army men.

Amendment negatived.

Mr. Harcourt: I beg to move, in paragraph (a), to leave out the words "designated by the Admiralty or Army Council for the purpose," and to insert instead thereof the words, "considered by the Air Council to be necessary for the purpose of leaving a unified and properly co-ordinated service in that respect."

After listening to the whole of these debates, I decided that I would raise specifically the question of anti-aircraft units. We have so far received no word of explanation as to the extent to which the Air Force proposes to control and administer personnel, to make itself responsible for supply of material, and to perform the necessary staff work in a highly specialised department of artillery, as novel in its way as aircraft. If the Air Service has suffered from divided control, I believe their difficulties have been mild in comparison with those of the gunner units. You must unify the personnel, you must have a common pool of trained officers and gunners from which the different units can draw their drafts, irrespective of their uniform. You must have a centralised and co-ordinated staff, so that your latest material, your latest information on fire control and war experience, is instantly available for units, by whomsoever they are locally controlled, and wherever they are situated. In Committee I said that life in these units was one long change of uniform. Take my own case. I started under the direct control of the Admiralty. I subsequently came under the control of the War Office. I then came under the Royal Naval Air Service. If I had continued, I think it would have been essential that I should have become an officer in the Royal Marines, and reverted to Army control.

I would ask one or two specific questions so far as in the public interest they can be answered. Do you propose to take over all or any substantial part of the general defence of the United Kingdom? Secondly, do you propose that the Air Force should take over specifically the defence of their own aerodromes, or leave that to the local military and naval authorities to provide such material and personnel as they may be able to spare?

Sir I. Philipps: I beg to second the amendment. I think it is a matter of the very greatest importance that we should know how we are situated as regards anti-aircraft organisation. I am sure the hon. gentleman agrees with me in thinking that what we are discussing now is the anti-aircraft defence of our own country. Whether it should be taken over by the new Air Council is a matter that wants very great consideration.

Major Baird: The hon. member who proposed, and the hon. and gallant gentleman who seconded this amendment, are undoubtedly as well qualified as anybody in this House possibly can be to speak to the amendment. The anxiety which they feel is, perhaps, natural in view of the knowledge—particularly of my hon. friend behind me—of the present position in regard to anti-aircraft. I will not say the present position, perhaps, but the development of anti-aircraft. But there are two things to which I think attention should be drawn. The hon. and gallant gentleman opposite said he wanted the Government to say what they required to do and to do it. The Government in this case is undoubtedly the War Council.

Sir I. Philipps: The War Cabinet.

Major Baird: I beg pardon—the War Cabinet. We are all apt to think in terms of matters prior to the war, when a Minister or a Secretary of State, or the First Lord of the Admiralty were members of the Cabinet, and, therefore, judges in their own case. Under the present system if any question arises of difference of opinion between the two Departments, that difference has to be submitted to the War Cabinet, and their judgment is supreme. I think that is much the better way to deal with so complex a matter as the question of anti-aircraft. In the first place, may I draw the attention of the House to this: The anti-aircraft gunners are not at present members of the Flying Corps of either branch. They are essentially gunners. Flying is no part of their business. The man who is going to deal with hostile aeroplanes in this way will have considerable advantage if he has some knowledge of aeroplanes, their speed, and so on. But the hard and fast rule that has been drawn in the past between the Royal Flying Corps and the Royal Naval Air Service and the anti-aircraft gunnery branch both of the Navy and of the Army does, I think, require modification. That modification, hon. members will agree, must be the result of experience in war. Developments are going on constantly at home and on the front in connection with anti-aircraft guns. It is on that experience that we must base the system to be applied to the defence of the country by anti-aircraft. It is quite certain, and everybody, I think, must admit it, that anti-aircraft gunnery and defence by aeroplanes must go together; but it does not follow that wherever you have anti-aircraft men you must also have an aeroplane station. I do not think it is necessary that isolated detachments of anti-aircraft gunners should be under the control of the body which controls the aeroplanes. Nobody would contend that the men on board His Majesty's ships who man the anti-aircraft guns should be under the Air Council. The difficulty is to avoid drawing hard and fast rules. I do not think my hon. and gallant friend opposite quite appreciates the powers which the Bill does confer. So far as Clause (3) is concerned, it is quite clear that the Admiralty and the Army Council may designate units of the naval or military forces for defence against aircraft, and they may be transferred or attached to the air forces.

Sir I. Philipps: That is material?

Major Baird: No, that is as regards the men. But Clause (8), sub-section (4) states:—

“(4) His Majesty may by Order in Council transfer from the Admiralty or from the Army Council or the Secretary of State for the War Department to the Air Council or the President of the Air Council such property, right and liabilities of the Admiralty or Army Council, or Secretary of State as may be agreed between the Air Council and the Admiralty or the Army Council as the case may be.”

Property undoubtedly must include the guns, so that I think that is watertight. My hon. friends are not satisfied, I gather, that the Air Council has adequate powers to take over what they think they ought to have.

Mr. Harcourt: Yes, what “they” think.

Major Baird: I do not think the words proposed—my hon. friend has said that he is not wedded to these words—can be inserted in the Bill. The difficulty of taking over after consideration—and we do not propose to take anything over without consideration—any portion of the Navy or Army which underlies the whole principle of this Bill makes it necessary in the event of any disagreement as to whether any particular force should be taken over or not should be left to be settled by the War Cabinet. I hope my hon. friend will be satisfied with my assurance that we are determined only to take over those sections of the Anti-Aircraft force which we think ought to be controlled in conjunction with the Air Forces of the Crown. But we do not wish to saddle ourselves with the control of a large number of anti-aircraft gun people who certainly belong to the Artillery. I am afraid I must ask the House to leave it to the Air Council when they have been able to go into this matter to decide who shall be taken over. I would like the House to leave the Bill as it stands with the assurance that it is our intention to ask for such control of the Anti-Aircraft Forces of the Crown as may appear to the Air Council to be desirable. They would take over such portions as they deem necessary, by attachment or transfer, whether they belong now to the Royal Artillery or whether they are naval gunners.

Mr. Harcourt: May I interrupt for one moment. Is the hon. and gallant gentleman aware there are a certain number of ratings who are actually in the R.N.A.S. and employed on anti-aircraft guns?

Major Baird: I think my hon. friend refers to some men who joined very early in the war and are now employed on these guns. There will be no more difficulty in taking them over with the consent of the Admiralty than there will be in our taking over anybody else, but the fact that there are a small number of men so engaged in anti-aircraft gunnery shows the difficulty of laying down here a hard-and-fast rule as to who shall or who shall not be taken over. I hope the House will realise the danger of even discussing details and will be content with the indication I have given of the intentions of the Government and of the Air Council to take such measures as may be considered necessary with the approval of the War Cabinet which will decide any disagreement that may arise between the Air Council and the Army Council and the Board of Admiralty. The House will realise how difficult it is for us to discuss this question satisfactorily, but I hope I have made it clear that we do not want to be tied down to take over or to refuse to take over any particular unit; we want these matters to be left open to be decided by the experience and knowledge of the officers themselves. I trust, therefore, that the amendment will not be pressed.

Mr. Billing: This House has a perfect right to know whether there is going to be any unification or not of the air defences of this country, and that is practically all that this amendment aims at. We have a right to know whether there is going to be one man responsible for defending this country, or whether there are going to be in charge all sorts of representatives of the respective Services, each working on his own and without co-ordination with the others, some giving orders to send up aeroplanes, other giving orders to fire the guns, and others still giving orders to lower the lights in certain districts. I am going to ask the hon. and gallant gentleman before we pass from this amendment to state clearly these points: Is there going to be one man, with a seat on the War Council, appointed to the supreme command of England; is he to have the control of all the aeroplanes, and of the aerodromes used for the purpose? Is he to have control of all the lighting arrangements throughout England: is his word to be law if he wishes the whole of a large munition area to be shut down at any given time, or has he to write to the Ministry of Munitions when he wants it shut down in the middle of the night and await an answer? On top of that, is this man to have a seat on the Air Council, and is he to be in supreme control of all the ammunition which he wants and of all the anti-aircraft guns and gunners that he wants to make an effective defence of this country? Take it in France. What about the kite-balloons? Are they to be in the Air Service? The Air Service have them. I believe they are sent. What about the anti-aircraft guns that serve with the kite-balloons to

protect them? Are they going over to the Air Service or are they going to be left to the Army? There is another point. Who is going to supply anti-aircraft guns, and who is going to conduct experiments in anti-aircraft shells, because that is a thing that is constantly developing? A man comes with a new invention. He has a fine anti-aircraft shell which may ignite a Zeppelin. To whom is he to take his invention?

The Chancellor of the Exchequer made the dramatic announcement that the Air Service was going to take over everything, lock, stock and barrel, *en masse*, but now we get qualifications from his assistant.

Major Baird: Will the hon. gentleman allow me to stop him at once misrepresenting what my right hon. friend said? What he said was perfectly clear, namely, that the whole of the two Air Services of the country were going to be absorbed into the new Air Service. No one knows better than the hon. gentleman that anti-aircraft gunnery does not either belong to the R.F.C. or to the R.N.A.S., except a small part. There is no modification whatever that has fallen from me or from anybody else on this bench of any statement made by my right hon. friend. None whatever.

Commander Bellairs: It seems to me the only way to obtain simplicity and avoid friction is for the new Air Ministry to avoid taking over any anti-aircraft guns whatever. For one argument that can be adduced in favour of those guns being taken over by the Air Ministry, ten arguments can be adduced in favour of their remaining in charge of the Army and the Navy.

Mr. T. Davies: It appears to me that this amendment is a very useful one, and I should have imagined that anyone acting on behalf of the Air Board would agree to have it inserted. It is most important that the new Air Council, if they considered it necessary, ought to take over any of these men, and also have command of the anti-aircraft guns.

Mr. Lynch: I regard this matter as so vital that if this very point is carried I should vote against the Third Reading, not because I do not desire an Act which will defeat the Germans, but because I regard this matter as the most essential point of the defence and of the attack to-day against the Central Powers. For years I have been trying to force upon the attention of this House the necessity for a Bill of a much wider scope than this and greater power, and after many months of consideration we have this lame measure which may satisfy a Parliamentary situation, but it will be totally inadequate for the main object of the Bill—that is, to defeat the Germans in the air.

Amendment negatived.

Mr. Billing: I beg to move to leave out sub-section (2).

I think it would have been much better if the whole clause had been left out. If this sub-section is carried it will be a most unfortunate thing, for the simple reason that since the friction first started between these two forces at the beginning of the war both of them have been endeavouring to expand, and so establish an overlapping that when it came to amalgamation the R.F.C. would be large enough to absorb the R.N.A.S., while on the other hand the latter service have all been working to be in a position to absorb the R.F.C.

Mr. Lynch: I formally second the amendment.

Major Baird: If this sub-section were left out very great injustice would be done. If the hon. member studies the provisions of what will be known as the Air Force Act, which provides for the discipline of the force, he will see that Section 48 provides that an officer cannot serve on a general court-martial unless he has held a commission for three years, or on a district court-martial unless he has held a commission for two years. Under the hon. member's proposal an officer might have had ten years' service before being transferred and yet could not serve on a court-martial, and it might not be possible to hold a court-martial.

Mr. Billing: That is only a formality. It could be adjusted.

Major Baird: I do not know whether you can call a court-martial a trivial matter?

Mr. Billing: The question of seniority is a trifling matter.

Major Baird: You have to safeguard the rights of men who are tried by court-martial. One qualification of an officer to sit on the court-martial is that he has done a certain amount of service. If you exclude this sub-section you may not be able to get officers who have that amount of service. This sub-section enables a man to be tried by a properly constituted court. Therefore, if the hon. member's amendment is carried, a great deal of injustice will be done, and the effect of eliminating the sub-section would not in any way have the effect he anticipates.

Amendment negatived.

Clause 6.—(Air Force Reserve and Auxiliary Force.)

Mr. Billing: I beg to move, in sub-section (1), after the word “of” [“officers and men of any unit”], to insert the words “the Royal Naval Volunteer Reserve or of.”

Why should any differentiation be made between a Territorial Officer before the war and a Royal Naval Volunteer officer before the war? This Bill proposes to graciously recognise the services of men who enlisted prior to the war and who were trained prior to the war for the defence of this country. It proposes to give them certain advantages if they transfer to the Air Service. I contend that that should apply equally to Naval Volunteers as to Volunteers in the Army.

Mr. Harcourt: I beg to second the amendment.

Major Baird: We are quite innocent in regard to the Royal Naval Volunteer Reserve. I endeavoured to make that clear to the hon. member (Mr. Billing) in the Committee stage. I pointed out to him then, and I repeat it now, that this clause refers to a unit of the Territorial Force. There is no unit of the Royal Naval Volunteers serving in the Air Service.

Mr. Billing: There may be many individuals serving.

Major Baird: The hon. member seeks to move an amendment to include a unit, and then he wants to shift it on to individual members. Individual members are included under Clause 3, which says, “any officer, warrant officer, petty officer, non-commissioned officer, or man of any of His Majesty's Naval or Military forces may.” That completely covers the ground of individuals, without any question. May I appeal to the hon. member, who asserted at the start, when the Bill was introduced, that he desired to see it on the Statute Book, imperfect though he considered it. If there is one way more than another to secure that a Bill shall not get on to the Statute Book it is to make a long speech on a point which has been completely disposed of in Committee stage and to bring it up again on Report stage.

Mr. Billing: Will the hon. and gallant gentleman point out what is the relevance between Clause 6 and Clause 3? Clause 6 refers, so far as I can read it, purely and simply to the Auxiliary Air Force, and as such it gives certain privileges to Territorial officers. If he will point out why I am so stupid in the matter, it will equally apply to the Under-Secretary for War, who is going to help me out in the House of Lords with it.

Major Baird: It is perfectly clear. In time of war there is no question of a reserve or an auxiliary force. In time of peace there will be. There is at present in Hampshire a unit of the Territorial Force which is now a part of the forces in the sense of being a reserve. Officers and men of the Royal Naval Volunteer Reserve are engaged in the war.

Mr. Billing: Not at all. The Royal Naval Volunteer Reserve were engaged long before this war was thought of.

Major Baird: But their period of service now is for the war. If they transfer it is certain it is for the war. If they transfer to the Air Force anyone who thinks we do not want to have them must be very slightly acquainted with the situation. Of course we want these men.

Mr. Billing: Why do you not say so?

Major Baird : We do in Clause 3, which makes it perfectly clear that we get these men. This clause is designed to deal with a unit of the Territorial Force and include it in the Reserve. There is only one unit of the kind existing to-day. The rest of the Auxiliary Force will obviously have to be created when the war stops. It does not affect the Royal Naval Volunteer Reserve in any shape or form. They are not included.

Amendment negatived.

Mr. Speaker : The amendment standing in the name of the hon. member (Mr. Billing) as to carrying His Majesty's mails is either not necessary or has already been disposed of by the decision of the House on the question of service.

Mr. Billing : On a point of order. The question of carrying mails was purely and simply introduced by me as an illustration of the necessity of changing the name.

Commander Bellairs : May I suggest that it is perfectly possible for the Air Force to carry mails under this Bill. The Navy carry mails, and the War Office may be called upon to protect trains or run trains with mails or to do anything of that kind.

Mr. Billing : This is not a question of carrying mails in war time. This is a question of a mail service in peace time, which is a different proposition altogether to the carrying of mails in war time.

Mr. Speaker : There is nothing to prevent His Majesty's ships carrying mails in peace time, and the same applies in this case.

Clause 3.—(Establishment of Air Council.)

Mr. Billing : I beg to move, at the end of Sub-section (1), to insert the words "It shall be lawful for the Board of Admiralty and the Army Council respectively to nominate an associate member for the Air Council, which members shall have the right to take part in all discussion and vote on all measures."

It has not been made very clear exactly what are the powers of the Air Service. It has not been made very clear whether the Air Council will retain control, either direct or indirect, of the members of the Air Service who are attached to the Grand Fleet or to the Army respectively; and it has not been made clear at all whether the guns and machines and the flying officers of the Navy who decide not to avail themselves of transfers or attachment are to be permitted by or under the Admiralty to carry out the functions of gun-spotting or scouting for the Grand Fleet. There is nothing in this Bill, so far as I can see, to prevent the Lords of the Admiralty building an aeroplane and asking one of their officers to fly it in the interests of the Grand Fleet. This amendment is down to provide that on the Air Council which it is proposed shall have control over, or at least a certain right of interference with, the aeronautical impedimenta, on sea or land, with the Army in the field or the Grand Fleet respectively, the Army and the Navy shall have a representative on that Council to make representations to the Council in the interests of the Grand Fleet and the Army respectively.

Mr. Harcourt : I beg to second the amendment.

Major Baird : I cannot accept this amendment. The Government are fully alive to the necessity of keeping the closest possible touch between the Army and Navy and the Air Forces. It has been stated quite clearly that the main business of the Air Council would be to co-ordinate the Air Forces of the two Services. The hon. member did not appreciate the competition of the Air Council as it is now proposed. This Council will discharge its duties in relation to the Army and Navy, and obviously means will have to be taken to keep the closest possible touch between all three Services. I do not think that the method suggested by the hon. member is necessarily the best method. There is nothing whatever to stop the Air Council inviting the Admiralty and the War Office to send representatives to consult with them. Undoubtedly consultations will be of daily, indeed, hourly occurrence, but it is essential in the interests of efficiency to leave it to the Air Council to decide the best methods to adopt.

Question put, "That those words be there inserted in the Bill."

The House divided : Ayes, 0 ; Noes, 143.

Mr. Pringle : I beg to move, at the end of Sub-section (1), to insert the words "Provided that no member of the Air Council shall be financially interested in any undertaking which supplies aeroplanes, aeroplane engines, or parts thereof to the Government."

I move this Amendment on behalf of my hon. friend the member for West Fife (Mr. Adamson). It was moved in the Committee stage, and gave rise to an interesting discussion. The result of that discussion was that the hon. and gallant gentleman who is in charge of the Bill, seeing the strong support his proposal received in Committee, said the matter would be considered before the Report stage. I do not desire to recapitulate what was put forward in support of the proposal in the course of that Debate, but I think it is to the advantage of the House that I should very briefly indicate what the main arguments were. Nobody, of course, seeks to disparage the value of services rendered to the country during the war by business men who have given their services to various Government Departments. There have been instances in which valuable help has been received, not only by the Air Service, but by the Ministry of Munitions and by the War Office, from business men, and consequently nobody wishes to prevent the best business and technical skill being at the disposal of the Government. Nor is it intended to discourage in any way those men who have served on the existing Air Board, or to suggest that their action has in any degree been improper. The reason for putting forward this proposal in connection with the Air Service is that the Air Service is in that stage which places a man who has business interests in a position of peculiar difficulty when he accepts a post in the Government. In the first place, the Air Service, more than any other, is in the experimental stage. You have continuously a series of improvements being brought into operation, and all sorts of questions arise in respect of royalties which may be payable for patents for improvements, and other matters. It is of the utmost importance that there should be no suggestion of financial interest on the part of those who make decisions in respect of royalties that may be payable. But the further question arises as to the likelihood of trials being given to new inventions, where those connected with the Air Board might happen to be financially interested in machines which at the present time are being turned out for the Government. That, I think, is a matter of extreme importance. It is obviously essential that in our Air Service we should have an open door to every possible improvement. It is necessary that our airmen may have the best possible machines at their service.

Mr. Harcourt : I beg to second the Amendment.

The Chancellor of the Exchequer (Mr. Bonar Law) : I certainly can find no fault either with the length or the tone of the speeches which have been made in support of this Amendment. But the Government cannot accept it—most emphatically cannot accept it—and, indeed, I am of the opinion that those who support it, support it without any clear idea of the conditions, or knowledge, of those industries which are now being carried on. This proposal really goes very much further than the rule which was laid down by the late Sir Henry Campbell-Bannerman as to directorships, which has since been adopted. The rule in regard to these appointments was that members of the Government were not to be directors of companies; but it was clearly understood that that rule did not apply to the private businesses of the gentlemen themselves. It must be obvious to the House that that is a right distinction, otherwise it would mean that no business man could ever become a member of the Government until he had absolutely given up his business. This proposal really goes to this length, not that a man has to give up directorships, but if he should have a business of his own, which, by any possibility, may come in contact with the

kind of matter with which he is dealing for the Government, he must either cease to serve the Government or must give up his business. That is a curious suggestion to be entertained by the House of Commons. I know that from the very beginning of the war I myself have taken up the view, and have expressed it often—and every time I have expressed it I have had the approval, so far as I could judge, of the whole House—that this country possesses in our business men a mine of capacity, and especially of organising ability, which it was the first duty of the Government to bring into its service in the conduct of the war.

Personally, I believe that the tremendous effort which has been made in this country in organising peaceful institutions for the purpose of war is one of the most wonderful things that has ever happened in the history of the world. I believe that that would have been absolutely impossible but for the assistance which the Government has gradually got more and more from practical business men who have been carrying on organisations in this country. When you say you want business men, you mean you want business men with special knowledge of particular things, and it is almost impossible to get men with that special knowledge unless they have been engaged in businesses which are more or less connected with manufactures. The idea that a man should be asked to give up his business, or else cease to serve the State, seems to me to be quite absurd. Obviously, however, if he is giving his whole time—and most of these gentlemen are—to the service of the State, they cannot be engaged in conducting their own businesses. To say that they have to give up their businesses means that when the war is over they will have lost not merely their profit, whatever that means, but have lost the whole occupation which has been made the business and work of their life.

Mr. Billing : A most improper suggestion!

Mr. Bonar Law : The hon. Member is not very quick to understand what I said. I did not state that after the war they would not merely lose their profits if they gave up their businesses, but lose the occupation which is part of their lives. Nobody could ask anyone to come under any such obligations.

Mr. Billing : Conscription has done it!

Mr. Bonar Law : I put that as a general proposition. I venture, however, to say something more. I thoroughly sympathise with the feeling of the House, that, so far as possible, any suspicion of private interest should be avoided. I am perfectly in favour of any plan that you can lay down which will secure that result, and which does not have one or two effects: which does not suggest suspicion on the part of this House as to the motives of these men—of whom I myself can name scores—who are not only giving their service, but suffering great financial loss in order to help the country at this time. Therefore, I approve any restriction which does not suggest that suspicion. I approve any suggestion which does not deprive the country of men who are specially needed at a time like this. Within these lines I shall be perfectly ready to go. It is the custom, I know, as regards the Ministry of Munitions—I am not sure about other Departments, but it is a very good custom—that every business man should make a declaration to the Secretary of the Department of what are his interests. That is a good arrangement. It is good from the point of view of the Minister; he knows exactly the position. It is good from the point of view of the business man: he shows that he is concealing nothing, that everything is open, and everybody knows exactly what they are going to do. While I say that, I do not myself rely upon that as a protection. I have said many times in this House, and I repeat it now, that my own opinion is, if Government Departments are dealing with business men in the way of bargaining, in nine cases out of ten the business man will get the best of it. I have spent the better part of my life in business. For seventeen years I have been associated with the House of Commons. I know what are the standards of honour, and all the rest of it, of business men. With my matured experience I venture to say this, that though the point of view is a different view, in my belief the standard of honour of business men is not lower than the standard here. What I rely upon in these matters is this: If you go to a business man, not to bargain but to say to him, "We ask you to act for the State, and we trust you," I venture to state here that in 99 cases out of 100 that trust will never be abused. What is more, that is not merely what one might expect from one's peace-time experience, but we have had an immense experience of it in this war. I know of no case where that trust has been abused. I know scores of cases where men have given not merely of their time, but given of their money, in order to have the privilege of helping the country at a time when the country needed their service. So much for the general situation.

I wish the House to consider this particular case. This Amendment is concerned not merely with this Board. If the principle of this Amendment be adopted it would have to be adopted all round. The result would be that I do not know how many men serving us in the War Office and the Ministry of Munitions would be compelled to give up what they are doing. I wish the House to consider the matter as regards this particular case. It applies only to one man. There is only one man who can be affected by this particular Amendment. The only man who can be affected is Sir William Weir.

Mr. Pringle : No, no!

Mr. Bonar Law : Absolutely. Only one man who is on the Air Board. If this Amendment be passed, what is the position? As it happens, I have, ever since I have been a member of the Government, taken the keenest interest in the Air Service. What I am saying now is not something got up in order to make this speech. It is the knowledge of over two years. Sir William Weir is the life and soul of the Supply Department of the Air Service. I do not know anyone who is indispensable. I do not believe in that doctrine. But I do say this: If he were to leave his present post it would be a calamity to the Air Service. What is his position? Before the war he had nothing to do with aeroplanes in any shape or form. The Director-General at that time went down to Glasgow, where he had personal connections, to try and get people as servants of the Government to undertake the work required to be done. Sir William Weir's firm undertook that work. The work which they undertook was on the basis of actual cost with 5 per cent. added. Anyone connected with manufacturing knows that if an estimate were made at an ordinary time more than 5 per cent. would be put on to the actual cost, so that I may say that practically this work is being done for nothing by this firm. I really wish this House to consider the effect of this kind of discussion when it falls upon one man alone, and in this case it only affects one man.

Mr. Pringle : I raised this discussion quite impersonally. While I knew Sir William Weir was connected with the Board, I made no reflection whatever on him.

Mr. Bonar Law : I quite realise that, and I do not suggest that there is anything of the kind.

Mr. Billing : I should like to associate myself with that. I made no personal imputation.

Mr. Bonar Law : I do not in the least think that this is a personal attack on Sir William Weir. That was not the point I was dealing with, but we all know he was the only man concerned for the moment, and therefore it seemed to me, as he seemed to be directly concerned, right to ask him to come and see me yesterday. He did so, and I talked it over with him. I found that he looked upon this as something affecting his position, and his first feeling was that he would like to be done with Government contracts altogether. I explained to him the position, but it is not easy for an outsider to understand these things. I explained to him that these questions are raised not on personal grounds, but in order to maintain what we consider to be a right principle, and that there was nothing personal about it. But it is not so easy to make people who do not understand our methods realise that these points are raised, not always to maintain a principle but sometimes to annoy the Government.

Mr. Harcourt: That is not so.

Mr. Bonar Law: Not in your case, I agree.

Mr. Pringle: I think that suggestion ought never to have been made—that this was done purely to annoy the Government.

Mr. Bonar Law: I made no such suggestion. What I said was that sometimes that was the motive for raising these questions.

Mr. Billing: A most improper thing to say.

Mr. Bonar Law: I explained the position as well as I could to Sir William Weir. I said it was a matter of principle. He accepted that. I said also that the Government would support me. He replied—and I think I should have taken the same view—"I am not serving the Government; I am trying, as far as I can, to help my country. This question has been raised in the House of Commons. It does not satisfy me that the Government supports me. Since it has been raised, I want to be sure that the House of Commons also is willing for me to go on." That is not unreasonable. With regard to all these questions I recognise as fully as any Member of the House that there is great danger of laxity growing up in regard to this kind of thing, but in these times we have to take war conditions. I am sure no one in the House would think that what we approve of now is to be regarded as a precedent as to what shall be done in time of peace. I would venture to ask the House of Commons as a whole, not merely with regard to this particular Amendment, but in regard to all these matters, that they should adopt the principle recommended by Lord Salisbury in another connection, that they should use large-scale maps and that they should consider not merely the principle, but, if necessary, go a little outside. I venture to make this appeal to the House. Let them show by their vote—or, better still, by having no vote—that not merely in the case of this particular gentleman, but in the case of all men who are giving their services in this kind of work, that we are not suspicious of them, but are grateful to them for the services rendered.

Mr. Ellis Griffith: I think I can assure the right hon. Gentleman that this is not an attempt in any way in this Amendment to bring in personal considerations, which for the first time he has introduced into this Debate. We are fighting for a principle, and we do not want to drag into the fight on that principle the name of any person. I submit that this is a very important principle. We may be able to abandon the principle for the sake of securing the services of one individual—

Mr. Bonar Law: Not one, but many.

Mr. Griffith: In this case let us frankly admit that we are abandoning a principle for a consideration which may be worth while. Am I to understand that the right hon. Gentleman takes the view that if the Secretary of the Air Board had a financial interest in a firm he would be able to make a contract with that firm? I do not think the right hon. Gentleman would go as far as that. The rule now in operation prevents any such thing taking place, because Parliament is anxious that there should be no conflict, and indeed no appearance of conflict, between the public and private interests of men who serve the State. I venture to think that that is a right view to take. It is not merely efficiency in administration; it is also confidence in administration that counts; and I submit for the consideration of the right hon. Gentleman that this merely does not affect one person. We do not know how many members of the Council it may affect—

Mr. Bonar Law: There is only one.

Mr. Griffith: One in this case, and I am quite sure we are all very anxious to secure a continuation of his services. But, as the right hon. Gentleman has pointed out, we are legislating for the future as well as for the present, and it might be most harmful if it were thought that in any Government Department there were men in receipt of Government salaries—I do not know whether Sir William Weir is or is not in receipt of a Government salary—it would be most harmful if it were thought that such men could come to a decision with regard to anything affecting the things they manufacture and affecting also their rivals in that industry. The right hon. gentleman, I take it, agrees with the view I am trying rather haltingly to put before the House of Commons, that in time of peace, as I understand the argument, it is all very well, but that those considerations that apply so cogently in time of peace cannot be applied in time of war, because we should lose services which are very important to the State. Put in that way, I am prepared to accept the view of the right hon. Gentleman.

Mr. Bonar Law: I should like to make what is almost a personal explanation. I did not do it purposely. The reason was that all the business people know that Sir William Weir was the only person who could be affected, and he seemed to be so much upset by it that I desired that the House of Commons itself should show by its own action that the House, as well as the Government, appreciated his services.

Amendment, by leave, withdrawn.

Mr. Billing: I beg to move, at the end of Sub-section (2), to insert the words, "If it should be found necessary, owing to the exigencies of the present war, to countenance the appointment to the Air Council of individuals who are members of trading concerns directly or indirectly interested in the output of aeronautical material or the tendering for, or accepting of, orders from such Air Council all such persons shall automatically retire from such Council immediately on the cessation of hostilities."

This Amendment falls well within the scope of the statement made by the Leader of the House. If it is not carried, any Members on the Air Council who are also members of trading concerns will in time of peace be able to continue to remain on that Council. The Leader of the House has stated that the only reason for rejecting the previous Amendment or not considering it seriously, was because of the position of one man. While we may be obliged to waive this principle in time of war, surely the Government cannot give any excuse for not undertaking to restore it in time of peace. I sincerely trust it will be restored not only in the case of the Air Council, but also in the case of this House itself.

Mr. Speaker: The Amendment is not seconded. The next three Amendments standing in the name of the hon. Member are all out of order, as they are covered in the Bill; but the Amendment as to the decision of the Air Council being final in certain matters is in order.

Mr. Billing: I beg to move, at the end of Sub-section (4), to add the words: "If any conflict should arise between the Admiralty Board and the Air Council or the Army Council and the Air Council as to the development or the disposition of any Air Service personnel or material which is not peculiar to the requirements of the Grand Fleet or the Army in the field, then the decision of the Air Council shall prevail."

This is a very necessary Amendment in order to prevent the delays which would occur in the event of the Air Council wishing to perform any act or to do any of the things which they have powers to do under the Bill while the Army and the Navy make up their minds whether they agree or not.

Amendment not seconded.

Clause 11.—(Provisions as to Sitting in Parliament.)

Mr. P. A. Harris: I beg to move to leave out Sub-section (2).

In addition to the Secretary of State, this Bill provides for the Under-Secretary and that a second Under-Secretary, who may be a Member of this House, may be appointed by the Government or the Minister. The general feeling in this House and of the public outside is that it is very undesirable to have any more additions to the number of His Majesty's Government. When the Bill for the Ministry of Reconstruction was under discussion, a very strong opinion was expressed that the limit of numbers had been reached, and according to my recollection, the result of that representation was that an Amendment to that Bill, similar to this Amendment, was accepted by the Government.

Mr. Macpherson: The Government is quite willing to accept this Amendment,

and as it is the fact that this financial secretary would not be appointed for some time, they do not press the matter further.

Amendment agreed to.

SECOND SCHEDULE.—PART I.—GENERAL MODIFICATIONS.

Subject to the specific modifications made in Part II. of this Schedule the Army Act shall apply with respect to the Air Force with the substitution of the terms set forth in the second column of the following table for the terms set forth in the first column of that Schedule wherever those terms occur in the Army Act.

| Terms in Army Act. | Substituted terms. |
|---|---|
| "military" when qualifying "purposes," "convict," "officer," "discipline," "corps," "battalion," "regimental," "goods," "accessories," "baggage," "institution," or "stores." | "custody," "prison," "prisoner," "reward," "pay," "pension," "allowances," "service," "office," "escort," "duty," "dis- cipline," "authority," or "authorities." (except in Sections 6 (1) (j), 158 (1) and 163 (1) (d).) "money," "mess," "board," "acces- sories," "baggage," "books," "institu- tion," or "stores." |
| "air force." | "corps or unit" as the case may require. unit. service. |

PART II.—SPECIFIC MODIFICATIONS.

The provisions of the Army Act mentioned in the first column of the following table shall be modified or excepted as provided in the second column of that table, and new sections shall be inserted as provided in that table.

| Section of Army Act. | Modification or Exception. |
|----------------------|--|
| 163 (1) | In paragraph (b) for "Army Council" there shall be substituted "Air Council or the Army Council" in paragraph (c), "air-force circulars" shall be substituted for "army circulars," and in paragraph (d) "air-force list" shall be substituted for "army list." |
| 175 | Sub-sections (3), (5), (6), and (9) and in Sub-section (7) the words from and including "subject to this qualification" to the end of the Sub-section shall be omitted. The following Sub-section shall be inserted after Sub-section (1):— "(1A) Any officer of the naval or military force of the Crown who is attached, or lent to, or seconded for service with the air force, subject, however, to the modifications contained in this Act, and with this exception, that if the members of the body of the air force with which any such naval officer is serving are themselves subject to the Naval Discipline Act he shall remain subject to that Act." In Sub-section (3A) "auxiliary air" shall be substituted for "territorial." In Sub-section (4) for "troops or portion of troops" there shall be substituted "air force or portion of an air force." In Sub-section (7) "air force" shall be substituted for "troops." In Sub-section (8) "any part of the air force" shall be substituted for "a force." In Sub-section (10) "air force" shall be inserted before "officers." In Sub-section (11) "an air force" shall be substituted for "a force," and for "the regular, reserve, or auxiliary forces" there shall be substituted "the regular, reserve, or auxiliary air force." |
| 176 | The following Sub-section shall be inserted after Sub-section (1):— "(1A) All petty officers, non-commissioned officers, and seamen and soldiers of the naval or military forces of the Crown who are attached or lent to the air force, subject, however, to the modifications contained in this Act, and with this exception, that if the members of the body of the air force with which any such petty officer or man of the naval forces is serving are themselves subject to the Naval Discipline Act he shall remain subject to that Act." In Sub-section (5) "or the militia reserve force" shall be omitted. |
| 181 | For the following expressions, namely—"territorial force, the battalion of militia, or the battalion or corps of yeomanry or volunteers," "territorial force or militiaman," "territorial force or militia" (wherever those words occur), "territorial force, a battalion of militia, or a battalion or corps of yeomanry or volunteers, as the case may be," "territorial force, militia, yeomanry, or volunteers," and "volunteers or the territorial force," there shall be substituted "auxiliary air force." Paragraph (d) of Sub-section (4) shall be omitted. |
| 183 | In Sub-section (2) the words from "and in India" to "may appoint" (both inclusive) shall be omitted. For "general officer" there shall be substituted "general or flag officer." In proviso (a) to Sub-section (4) "air force" shall be substituted for "army." In proviso (b) the words from "and in India" down to "may appoint" (both inclusive) shall be omitted. |
| 186 | For "auxiliary forces" there shall be substituted "auxiliary air force." |
| 190 | Sub-sections (3), (9), (12), (13), (14), (16) and (22) shall be omitted. |

Amendments made: In Part I., leave out the words "or authorities," and insert instead thereof the words "whether such words are used in the singular or the plural."
After "163 (1) (d)," insert "and 181 (5)."
After the word "necessaries," insert the words "except in Section 156 (7)."
—[Major Baird.]
Further Amendments made: After paragraph on Section 122 (6) of Army Act, insert the words,
"130 (5). At end shall be inserted:
Provided that this Sub-section shall not apply to a person imprisoned in England."
In paragraph on Section 163, after the word "In," insert the words "paragraph (a), 'any of' shall be omitted in."
In paragraph on Section 175, after the word "troops," insert the words "and 'any of' shall be omitted."
After the words "a force" insert the words "for 'such force' there shall be substituted 'such part.'"
In paragraph on Section 176, after (1) (a), insert the words "In Sub-section (2), 'any of' shall be omitted."

After the word "force" ["Militia Reserve force"], insert the words "and paragraph (b)."

In paragraph on Section 181, after the word "For" ["For the following expressions"], insert the words "any of His Majesty's Auxiliary Forces, and His Majesty's Auxiliary Forces there shall be submitted 'the Auxiliary Air Force,' and for."

Paragraph on Section 183, after the word "to" ["and in India to"], insert the words "in Council."

After the words "general or flag officer," insert the words "and after 'in the field,' there shall be inserted '(whether such officer is an officer of the Air Force, Army, or Navy).'"

After the words "shall be omitted," insert the words "and 'Air Force' shall be substituted for 'Army.'"

Leave out the paragraph on Section 186.

In paragraph on Section 190, after the word "omitted," insert the words, "In Sub-section (4) for 'His Majesty's Forces,' wherever those words occur, and for 'His Majesty's said Forces,' there shall be substituted 'the Air Force'; and in Sub-section (5), for 'Army' there shall be substituted 'Air Force';

and in Sub-section (8) the words 'from and including' to 'Royal Malta Artillery (both inclusive) shall be omitted.'

Motion made, and Question proposed, "That the Bill be now read the third time."

Major Baird rose in his place, and claimed to move, "That the Question be now put."

Question put, "That the Question be now put."

Mr. Billing (seated and covered): The Closure has been put before any but one Member has had an opportunity of speaking on this Bill.

Mr. Billing: On the point of Order. May I ask you whether, before Members have even had an opportunity of signifying their desire to speak by rising, it is in order for a man to be put up by the Government after the first opening phrases of the first Member who rises to address the House on the Third Reading? I consider it a most improper proceeding.

The House divided: Ayes, 136; Noes, 0.

Question put accordingly, and agreed to.

Bill read the third time, and passed.

THE AIR FORCE BILL IN THE LORDS.

THE Earl of Crawford, on November 21st, moved the Second Reading of the Air Force Bill. He regretted profoundly that the measure had not been presented to their lordships by Lord Cowdray, and said the Bill marked a notable stage in the progress and evolution of our air service, and had been rendered possible by the organising power, the experience in handling big things, and the knowledge of men possessed by Lord Cowdray. The Bill made a distinct Air Service which would have its own ideals and its own personality. The Air Force would be an annual force like the Army was.

Viscount Cowdray expressed his wholehearted support of the Bill, which, he said, was the outcome of much anxious thought and preparation. If the Air Forces were to remain as units only of the two great fighting Services, which God forbid, the proposed legislation was not necessary, but if they realised that an independent Air Force was needed with full power, complete organisation, and equal rank with the Army and Navy, the Bill should receive their full approval. For the last three months numerous committees consisting of experts in their various departments had been constantly thinking out various problems connected with the creation, establishment, administration, and discipline of an Air Force, and the setting up of an Air Council. The transfer would be gradually effected, and he did not think, if care were taken, that it was possible for any disorganisation to occur during the transition period. The creation of the new Air Ministry would not affect the executive command at present exercised by Sir David Beatty and Sir Douglas Haig over the Air Forces of the Fleet and Army. The only difference would be one of administration. Whereas hitherto the Flying Services had been administered by two Departments, the Admiralty and the War Office, and equipped under a complicated system in which no fewer than four Departments were involved, in future they would be administered by a single Department, and equipped by the Ministry of Munitions on the requisition of the Air Minister. From an intimate business connection of 30 years with our great Ally the United States, and from the acquaintance with the commercial and industrial possibilities he had acquired at the Air Board, he had a firm conviction that with the passing of the Bill we should be more than able to fulfil our own expectation for ourselves than those of our Ally for us.

Viscount Haldane, after emphasising the great service which Lord Cowdray had rendered to the country, said the enormous development of the Air Forces in this war, and the immense importance which they possessed for the future, made it essential that they should recognise that it was not possible for the Army and Navy to undertake the administration and organisation. Therefore he entirely agreed with the principles of the Bill. But the crucial clause of the Bill was Clause 8, which set up a council. Everything depended upon it. It was absolutely essential that the chiefs of the staff should work in close co-operation with the chiefs of the staffs of the other two Services. The Air Force was going to play a tremendous part in war, though he could not say that it was going to supersede other Services to the extent which some people thought. His great anxiety about the new force was not how it was to be organised, not how it was to be administered, but how the higher command would be brought into intimate and continuous relation with the higher commands of the Army and Navy.

Lord Tenterden said it was important to know whether the step proposed portended a very large increase in aircraft, so that we should not have a force inferior to any similar force in any other country. He trusted that an assurance would be given by the Government that a scheme was in hand for increasing our output of aircraft, without which the establishment of the proposed Air Council would be of little effect.

Lord Erskine remarked that supremacy in the air was of the most vital importance at the present moment, and any measure which would bring about that supremacy would certainly be warmly welcomed. This Bill would do away with any slight friction which had arisen between the naval and military branches—friction the amount of which, in his opinion, had been greatly exaggerated. Knowing that the Germans were making almost superhuman efforts to increase the efficiency of their air service, and realising to what a large extent the war would be decided by the air forces, he thanked the Government for having brought in the Bill.

The Marquess of Salisbury intimated, however, that some noble lords might wish to avail themselves of the opportunity afforded by the procedure of this House to have a general discussion upon the Bill on going into Committee.

Earl Russell drew attention to a provision in Clause 12 of the Bill that the Army Act, subject to the necessary modifications, should apply to the Air Force, and should take effect as a separate Act of the present session. This creation, by a single clause, of a separate Act to be known by a distinctive title he regarded as a constitutional innovation.

Earl Curzon said that the Bill was the result of a concordat which had been arrived at between the two great Departments of the State. The result was very largely due to the activity and influence of General Smuts, who was charged by the War Cabinet with the investigation of this problem. General Smuts had been in constant co-operation with Lord Cowdray, and it was largely due to the advice he had tendered and the influence he had exercised that the present arrangement had been arrived at. They all deeply regretted the severance by Lord Cowdray of his connection with the Air Board. His Lordship had brought to the Service wide experience and great powers of organisation, and the fact that the Air Ministry was now being set up by general consent and without friction was largely due to him. As to the increased production of aircraft under the auspices of Lord Cowdray, he wished he could give the figures. He could not, however, without giving information to the enemy. It was sufficient to say that the expansion had been remarkable and almost prodigious. If they cast their eyes into the future and contemplated the war lasting, as seemed likely, well into next year, the figures of production would be such as to give a feeling of sure confidence not only as to our advantage over the enemy, but as to our overwhelming superiority. This was not only a war measure but a post-war measure. Astonished as they had been by the development of the Air Service in the war, it was not to be supposed that the development would cease with the war. It would remain a permanent and material part of our organisation.

The Bill was then read a second time.

QUESTIONS IN PARLIAMENT.

Norwegian Wood-Pulp and German Aircraft.

MR. THORNE, in the House of Commons on November 19th, asked the Secretary of State for Foreign Affairs whether he is aware that 88 per cent. of chemical wood-pulp consists of cellulose, and that on the declaration of cotton as contraband in the autumn of 1915 the Germans announced that they would use wood-pulp as a substitute; that this announcement was promptly followed by Sweden placing an embargo on the export of chemical wood-pulp to Great Britain in January, 1916; that immense profits were then realised by Swedish and Norwegian makers by sending these chemical products into Germany for the manufacture of Zeppelins, aircraft and munitions; that these same Swedish and Norwegian makers are now acquiring the Kellner-Partington Paper Pulp Co., owned by British shareholders and directors, and that the effect of this acquisition will be to increase enemy munition supplies and material for Zeppelin building; and whether he will refuse consent to the sale until the whole proceedings of this company and its directors have been investigated by a Special Committee?

LORD R. CEIL: In answer to the first part of the question, I believe the Germans have been using wood-pulp for the manufacture of nitro-cellulose; to the second, an embargo was placed on the export of cellulose; to the third, no doubt large profits were made but not in connection with Zeppelins or aircraft; to the fourth, that the company named is being acquired by Norwegian purchasers; and to the fifth, that careful inquiry was made as to the purchasers, and steps have been taken to obtain an undertaking from them not to sell the products to enemy purchasers, and in these circumstances, and in view of the great importance of keeping up the Scandinavian exchange, consent has been given to the sale.

MR. THORNE asked the Secretary of State for Foreign Affairs whether he is aware that the forest properties of the Kellner-Partington Paper Pulp Co. consisted of 200,000 acres in Sweden and 100,000 acres in Norway, and that this wood consists largely of the best classes of spruce and other woods capable of conversion into cellulose and nitro-cellulose and consequently of value in munition making and Zeppelin building; whether he is aware that there are large exports of wood-pulp to Germany in return for an import of 4,000,000 tons of coal; whether he has considered the danger of arming the enemy if these properties pass out of British hands while war is still proceeding; and, if so, will he say what action he proposes to take?

LORD R. CEIL: The answer to the first part of the question is in the negative; to the second, in the negative; to the third, in the affirmative.

MR. BUTCHER: Have any steps been taken to ascertain on whose behalf this purchase is to be made?

LORD R. CEIL: We received a positive assurance from the Norwegian Government that nobody except Norwegian subjects are to be allowed to share in the purchase; and, so far as I can estimate the situation, the fear expressed as to purchase on behalf of the German Government has not any foundation.

Air Ministry and Lord Northcliffe.

MR. KING asked on what date Lord Northcliffe was most recently invited to take charge of the new Air Ministry; whether the resignation of Lord Cowdray has been accepted; and whether a new Air Minister has been appointed?

MR. BONAR LAW: The communication between the Prime Minister and Lord Northcliffe was verbal, and I cannot give the exact date of the conversation. The answer to the second part of the question is in the affirmative, and to the third part in the negative.

MR. KING: Can the right hon. gentleman say—within a week, a month, or two months—when this special invitation was verbally communicated?

MR. BONAR LAW: I do not think it necessary to say, but it must have been on a more recent occasion than that, as Lord Northcliffe has only recently arrived from America.

MR. HOGGE: Is the Prime Minister's answer to Lord Cowdray to be published?

MR. BONAR LAW: I do not know that. I have not discussed it with the Prime Minister.

MR. OUTHWAITE: Did Lord Northcliffe refuse to take office because of the number of incompetent and tired members in the Government, and has any step been taken to remove that objection?

MR. BONAR LAW: I have not heard of any such statement. The worst of it is that I am afraid that those who are tired do not realise it soon enough.

Enemy Air Raids Compensation.

SIR HENRY HARRIS asked the Chancellor of the Exchequer if he will state the address to which applications for compensation under the Government scheme for air-raid damage should be sent?

MR. WARDLE: My right hon. friend has asked me to answer this question. I am sending the hon. member a pamphlet describing the air-raid compensation scheme, and he will see that in the case of uninsured property applications have to be addressed to the Air Raid Compensation Committee, Palmerston House, Old Broad Street. In the case of property insured under the Government scheme, immediate notice should be given to the office through which the insurance was effected.

Air Service Uniforms.

MR. HARCOURT, on November 22nd, asked the Prime Minister whether it is proposed that the Air Force shall have uniforms of a different colour to that previously adopted for naval or military purposes; whether such uniforms will at once become compulsory for all ranks and will involve the scrapping of existing uniforms; and, if so, what is the objection to khaki?

THE PARLIAMENTARY SECRETARY to the Air Board (Major Baird): It is proposed to adopt a distinctive uniform for the Air Force, but this uniform will not become compulsory until sufficient time has elapsed for the old uniforms to be worn out. It is not yet decided whether the new uniforms will include a change of colour.



The British Air Service



"PER ARDUA AD ASTRA"

UNDER this heading are published each week the official announcements of appointments and promotions affecting the Royal Naval Air Service and the Royal Flying Corps (Military Wing) and Central Flying School. These notices are not duplicated. By way of instance, when an appointment to the Royal Naval Air Service is announced by the Admiralty it is published forthwith, but subsequently, when it appears in the LONDON GAZETTE, it is not repeated in this column.

Royal Naval Air Service.

Admiralty, November 23rd.

Sub-Lieut., R.N.V.R. (Temp.).—K. W. J. Oldridge, entered as Prob. Flight Officer (temp.), seniority Nov. 4th.

The following Prob. Flight Officers (temp.) have been promoted to Flight Sub-Lieuts. (temp.), with original seniority:—E. W. T. Fussell, G. J. L. Cowdell, C. H. Cooper, G. P. Armstrong, K. G. Withers, J. H. Siddall, J. H. Hardiman, J. S. Martin, J. S. J. Craigen, E. Delorme, P. K. Glazebrook, W. B. Mattinson, C. S. Devereux, E. W. Longdale, L. D. E. V. Chisman, C. G. Edwards, G. M. Clark, J. H. Taylor, G. Tucker, W. N. Cummings, C. W. V. Colling, J. G. Carroll, R. H. Casgrain, W. H. Dickens, C. W. Emmett, R. M. Berthe, G. A. Pitt, H. Wickett, A. R. Creese, G. O. Smith, S. C. Strafford, H. S. Boulding, V. C. N. Tiarks, L. H. N. Langworthy, T. S. Oliver, H. A. Hince, C. Jewell, D. L. Helliwell, H. T. Williams, C. R. C. Wallworth, G. W. Morey, A. M. Bannatyne, R. K. Brydon, J. D. Richardson, and F. J. N. Jones.

The following Prob. Observer Officers (temp.) have been promoted to Obs. Sub-Lieuts. (temp.), with original seniority:—J. R. S. Young, L. D. Henderson, H. R. Easby, C. S. Sivil, N. H. Jenkins, H. C. Wolbourn, M. A. Rosenblatt, W. Sutherland, and G. F. F. Read.

E. J. Protheroe entered as Prob. Flight Officer (temp.), seniority Nov. 26th, and appointed to *President II*, addl., for R.N.A.S.

A. Clayton and N. Barker both granted temp. commissions as Lieut. (R.N.V.R.), seniority respectively Nov. 15th and 26th, and both appointed to *President II*, addl., for R.N.A.S.

L.M. (S.).—N. J. Bell granted temp. commission as Lieut. (R.N.V.R.), seniority Nov. 26th.

H. S. Smith granted temp. commission as Lieut. (R.N.V.R.), seniority Nov. 26th.

Admiralty, November 24th.

Acting A.M. (1).—H. E. Craymer, granted temp. commission as Lieut. (R.N.V.R.), seniority Nov. 20th.

A.M. (2).—W. Sanderson, entered as Prob. Observer Officer (temp.), seniority Dec. 1st.

Messrs. V. W. Lamb and W. J. Nolan, both entered as Prob. Flight Officers (temp.), seniority respectively Nov. 14th and 26th.

The following have been entered as Prob. Flight Officers (temp.), seniority Nov. 18th:—H. A. Haines, B. F. Hale, A. M. Hall, R. A. H. Hamilton, A. R. Heaver, H. H. Hill, L. B. Irish, J. H. Knight, A. C. Law, C. A. MacLennan, A. J. Mantle, R. G. Mollard, R. M. Morris, R. L. Pallett, J. Phillip, E. G. Phillips, L. Poulter, W. S. Pullen, H. R. A. V. Puneher, P. E. Richardson, J. B. Risk, G. O. Scrampton, O. H. Young, A. J. Stubbings, J. A. E. Steel, A. F. Richardson, A. J. Reith, J. G. Nash, M. D. Moore, H. C. Mason, J. H. Gibbons, A. G. Fraser, L. D. Brown, C. A. Dodd, A. W. Alford, R. M. Bennett, C. M. Burchell, G. O. Caney, G. H. Clarke, W. J. Densham, C. P. Durkin, R. H. Durman, R. Shepperd, H. A. Smith, L. A. Somerville, R. J. W. Taylor, W. E. Thomas, F. N. Underwood, J. H. C. Ware, M. Wallace, V. E. Watson, W. N. Errington, L. J. French, and C. C. H. Grosse.

Temp. Commissions (R.N.V.R.) have been granted to the following, seniority as stated:—Lieut.: W. S. Stacey; Nov. 16th. Sub-Lieuts.: H. Gray, Nov. 30th; and L. D. G. Morrison; Dec. 3rd.

Royal Flying Corps (Military Wing).

London Gazette Supplement, November 19th.

Equipment Officers, 1st Class.—From the 2nd Cl., and to be Temp. Capts. whilst so employed:—2nd Lieuts. (Temp. Lieut.) W. T. Hanson, S.R.; Oct. 11th. Lieut. F. W. H. Lerwill, S.R.; Nov. 8th. 2nd Cl.—From the 3rd Cl., and to be Temp. Lieuts. whilst so employed:—2nd Lieut. H. G. Etheridge, S.R.; 2nd Lieut. W. C. Hacon, S.R.; Temp. 2nd Lieut. W. G. Nutter, Gen. List; Oct. 11th. From the 3rd Cl.—Lieut. D. Drover, S.R. And to be Temp. Lieuts. whilst so employed:—2nd Lieut. C. J. Pender, S.R.; Temp. 2nd Lieut. J. H. Dale, Gen. List; 2nd Lieut. T. T. Cumming, S.R.; 2nd Lieut. A. W. Barlow, S.R.; Temp. 2nd Lieut. N. Liddall, Gen. List; 2nd Lieut. J. H. Secker, S.R.; Temp. 2nd Lieut. A. Howard, Gen. List; Temp. 2nd Lieut. L. P. Timmins, Gen. List; Temp. 2nd Lieut. L. C. Row, Gen. List; 2nd Lieut. G. G. Kitson, S.R.; 2nd Lieut. D. H. Kemp, S.R.; Temp. 2nd Lieut. E. F. Moulder, Gen. List; Nov. 1st. Temp. Lieut. H. N. Charles, Gen. List; Nov. 10th.

General List.—Temp. 2nd Lieut. L. D. H. Robson resigns his commission on account of ill-health, and is granted the hon. rank of 2nd Lieut.; Nov. 20th. Cds. to be Temp. 2nd Lieuts. (on prob.):—W. M. M. McNeill-Hamilton, A. E. Watson; Oct. 14th. W. S. Greenwood; Oct. 21st. F. K. Kneller; Oct. 27th. R. L. Davies, J. Myers, F. H. Paulton, W. K. J. Shirclaw, J. A. Watherley; Nov. 5th. C. N. James, D. Macdougall, H. Slim, J. C. Tate; Nov. 8th. To be Temp. 2nd Lieuts. (on prob.):—Cdt. H. M. C. Drummond-Wolff, from R. Mil. Coll.; Oct. 22nd. Acting Flight Sgt. J. L. Geddes, from R.F.C.; Nov. 1st.

Memorandum.—Temp. Sergt.-Major J. F. Clark to be 2nd Lieut. for duty with R.F.C.; Sept. 3rd.

London Gazette Supplement, November 20th.

The following appointments are made:—

Flight Commanders.—From Flying Officers:—Capt. E. A. Fawcus, North'd Fus. (T.F.); Sept. 9th. And to be Temp. Capts. whilst so employed:—2nd Lieut. (Temp. Lieut.) E. H. Bryant, Essex R. (T.F.); Nov. 4th. Lieut. G. E. G. Duff, Cam'n Highrs.; Nov. 7th.

Flying Officers.—Temp. Lieut. N. S. McConnell, A.S.C., and to be transf'd. to R.F.C. Gen. List; Aug. 14th. Temp. 2nd Lieut. (on prob.) J. J. Williamson, Gen. List, and to be confirmed in his rank; Aug. 24th. Temp. 2nd Lieut. A. C. Reid, Gen. List; Sept. 5th. 2nd Lieut. F. V. Devonshire, Hrs., and to be sec'd.; Sept. 6th. Temp. Lieut. H. Oldham, attd. W. York R., and to be transf'd. to R.F.C. Gen. List; Sept. 14th. Temp. 2nd Lieut. T. L. Steele, Gen. List; Sept. 17th. Temp. 2nd Lieuts. (on prob.), Gen. List, and to be confirmed in their rank:—G. B. Solomon; Oct. 19th. H. A. Airey, A. L. Kidd, C. Stuart, W. A. Ramsay, R. S. Hitchcock, A. J. Broomfield, B. S. Wilcox, A. E. Rintoul, W. L. Stead, G. J. Wilde, J. D. Dingwall, G. Gornall, T. Rose, L. L. F. Towne; Oct. 27th. Capt. E. Z. Agar, Can. Exped. Force; Lieut. C. C. Langstroth, Can. Engrs.; 2nd Lieut. (on prob.) R. B. Bannerman, S.R.; Lieut. N. G. Reynolds, Can. Exped. Force; Oct. 28th. Temp. 2nd Lieuts. (on prob.), Gen. List, and to be confirmed in their rank:—J. W. Bell, M. F. Cunningham, L. Grime, G. C. Grundy, E. G. Rooks, H. E. Barwell, W. S. Mars, L. C. W. Bauchope; Oct. 29th. C. L. Frank; Oct. 30th. 2nd Lieut. A. C. Garnons-Williams, M.C., S. Wales Bord, from a Flying Officer (Obs.); Temp. 2nd Lieuts. (on prob.), Gen. List, and to be confirmed in their rank:—D. G. McLean, J. M. Milne-Henderson, H. Greene, L. W. Stacey; Oct. 31st.

Assistant Instructor in Gunnery.—(Graded as an Equipment Officer, 2nd Class).—Lieut. M. A. H. Fell, N. Zealand Inf.; Nov. 1st.

Balloon Officers.—Capt. A. H. Harrison, Lond. R. (T.F.), and to be sec'd.; May 25th. Lieut. S. J. Hawthorn, N. Staff. R. (T.F.), and to be sec'd.; Oct. 1st. Temp. Capt. C. S. Emden, attd. R. W. Kent R., and to be transf'd. to R.F.C., Gen. List; Temp. Lieut. A. J. Kitcat, Wilts R.; Lieut. P. J. Slater, S. Staff. R. (T.F.), and to be sec'd.; Oct. 25th. Temp. 2nd Lieuts. (on prob.), Gen. List, and to be confirmed in their rank:—H. A. Allback, H. Hoyle, G. W. White; Oct. 25th.

Equipment Officer, 2nd Class.—2nd Lieut. C. Q. Steel, S.R., from the 3rd Class, and to be Temp. Lieut. whilst so employed; Nov. 1st.

General List.—Temp. 2nd Lieut. A. Blair, to be Temp. Lieut.; May 27th. Temp. 2nd Lieut. W. E. Durant to be Temp. Lieut. whilst serving with R.F.C.; Oct. 22nd. Corpl. H. Sorrell, from R.F.A. (T.F.), to be Temp. 2nd Lieut. (on prob.); Oct. 4th. The name of Temp. 2nd Lieut. H. L. Blackford is as now described, and not as in *Gazette* of Nov. 9th.

London Gazette Supplement, November 21st.

The following appointments are made:—

Flying Officer.—The rank of Capt. M. R. Taylor, Canadian Gen. List, is as now described, and not as in the *Gazette* of Sept. 20th.

Flying Officer (Observer).—Lieut. J. W. Price, Canadian Art., July 19th, seniority from June 3rd. Substituted for the notification in the *Gazette* of Aug. 7th.

Group Instructor in Gunnery.—Graded as a Flight Commander.—Temp. Capt. S. E. Adams, Gen. List, a Flight Comdr.; Oct. 25th.

Assistant Instructor in Gunnery.—(Graded as an Equipment Officer, 2nd Class).—Lieut. D. R. Smith, Canadian Local Forces, from an Asst. Instr. in Gunnery (graded as an Equipment Officer, 3rd Class); Oct. 29th.

Adjutant.—Capt. E. W. Forbes, M.C., R. War. (T.F.); Sept. 2nd.

Equipment Officers, 1st Class.—From the 2nd Class, and to be Temp. Capts. whilst so employed:—2nd Lieut. (Temp. Lieut.) C. H. Drabble, S.R.; Oct. 5th. Lieut. G. W. Dobson, Hrs.; Nov. 1st. 2nd Lieut. (Temp. Lieut.), A. P. Sergeant, S.R.; Nov. 5th. 2nd Class, from the 3rd Class:—Lieut. P. G. Robinson, S.R.; Oct. 5th. Lieut. A. H. Chapman, S.R.; Oct. 13th. And to be Temp. Lieuts. whilst so employed:—Temp. 2nd Lieut. A. D. Goodwin, Gen. List, 2nd Lieut. D. R. Pye, S.R., 2nd Lieut. J. F. Bargman, S.R.; Oct. 23rd.

General List.—Temp. 2nd Lieuts. to be Temp. Lieuts. whilst serving with R.F.C.:—E. G. Dickie; Oct. 20th. H. J. Macdonald; Oct. 26th. O. A. Moore; Oct. 27th. M. F. Cunningham; Oct. 29th. Temp. 2nd Lieut. F. Hockaday resigns his commission; Nov. 22nd.

Supplementary to Regular Corps.—Lieut. A. H. L. Beale is placed on the retired list on account of ill-health; Nov. 22nd. 2nd Lieut. C. A. Bissonett to be Lieut.; Oct. 22nd. 2nd Lieuts. (on prob.) are confirmed in their rank:—R. B. Bannerman, H. H. Blackwell.

London Gazette Supplement, November 22nd.

The following appointments are made:—

Flight Commanders.—From Flying Officers, and to be Temp. Capts. whilst so employed:—2nd Lieut. (Temp. Lieut.) H. Brokensha, R.E. (T.F.); Nov. 6th. Temp. 2nd Lieut. A. N. Kingwill, Gen. List; Nov. 10th. The appointment of Lieut. (now Capt.) W. R. Read, M.C., D. Gds., notified in the *Gazette* of Sept. 26th, is antedated to Feb. 8th, 1915, but without pay or allowances prior to Sept. 5th.

Flying Officers.—Temp. 2nd Lieut. A. G. Pointing, Gen. List; Oct. 18th. Temp. 2nd Lieuts. (on prob.), Gen. List, and to be confirmed in their rank:—T. F. Howlett; Oct. 21st. W. S. Stephenson; Oct. 26th. Temp. 2nd Lieut. E. H. N. Stroud, attd. Leic. R., from a Flying Officer (Obs.), seniority Sept. 27th, 1916, and to be transf'd. to R.F.C., Gen. List; Oct. 27th. Temp. 2nd Lieuts. (on prob.), Gen. List, and to be confirmed in their rank:—E. Langston, O. A. Moore, D. B. Robertson, E. L. Smithers, R. T. Hall; Oct. 29th. A. G. Bewes, F. R. Kitton, J. T. Paine; Oct. 30th. Lieut. J. O. Beattie, Canadian Exped. Force; Oct. 31st.

Balloon Officer.—(Graded as a Balloon Officer).—Lieut. R. A. Greenwell, R.F.A. (T.F.), from a Balloon Officer; Nov. 12th.

Adjutants.—Temp. 2nd Lieut. (on prob.) J. D. H. Osborn, Gen. List, to be confirmed in his rank and to be Temp. Capt. (without the pay or allowances of that rank) whilst so employed; Nov. 2nd. Capt. H. F. Copeman, Essex R. (T.F.); Nov. 4th.

Special Appointment.—(Graded as a Park Commander).—Lieut. (Temp. Capt.) R. Holloway, S.R., from an Equipment Officer, 1st Class, and to be Temp. Major whilst so employed; Nov. 6th.

Equipment Officers, 1st Class.—Temp. Lieut. H. J. Lister, Gen. List (Lieut. S. Afr. Defence Force), from the 2nd Class, and to be Temp. Capt. whilst so employed; Nov. 3rd.

2nd Class.—Temp. 2nd Lieut. B. Taplin, Gen. List, from the 3rd Class, and to be Temp. Lieut. whilst so employed; Oct. 25th. 2nd Lieut. (Temp. Lieut.) A. Hawley, Gen. List, from an Asst. Instr. (graded as an Equipment Officer, 2nd Class), School of Mil. Aeronautics, and to retain his Temp. rank whilst so employed; Oct. 27th. Lieut. F. W. Wright, S.R., from the 3rd Class; Oct. 29th.

3rd Class.—Temp. 2nd Lieut. (on prob.) E. J. Girdler, Gen. List, and to be confirmed in his rank; Aug. 27th. Temp. 2nd Lieut. R. B. D. Malden, Shrops. L.I., and to be transf'd. to R.F.C., Gen. List; Oct. 12th. Temp. 2nd Lieuts. (on prob.), Gen. List, and to be confirmed in their rank:—The Hon. B. J. Fitzherbert; Oct. 17th. F. C. Pratt, J. C. Ferguson; Oct. 18th. G. Johnson, A. C. Geen; Oct. 28th. W. Z. Grandi; Oct. 29th. C. F. King; Nov. 1st.

Schools of Instruction.—School of Technical Training.
Equipment Officer, 1st Class.—And to be Temp. Capt. whilst so employed.—Temp. Lieut. A. Mackay, Gen. List, from an Equipment Officer, 2nd Class, School of Technical Training; Oct. 13th.

General List.—Temp. 2nd Lieut. L. D. Bolton resigns his commission; Nov. 23rd. Corpl. R. Swan, from R.F.C., to be Temp. 2nd Lieut. (on prob.); Oct. 22nd.

London Gazette Supplement, November 23rd.

The following appointments are made:—

Wing Commander.—2nd Lieut. (Temp. Maj.) R. G. Blomfield, D. Gds., from a Sqdn. Comdr., and to be Temp. Lieut.-Col. whilst so employed; Oct. 30th.

Squadron Commander.—Temp. Capt. R. Raymond-Barker, M.C., Gen. List, from a Flight Commander and to be Temp. Maj. whilst so employed; Sept. 17th.

Flight Commander.—Capt. G. I. Paterson, Canadian Local Forces, from a Flying Officer; Nov. 10th.

Flying Officers.—Temp. 2nd Lieut. A. T. Essex, Br. W. Indies R.; Aug. 30th. 2nd Lieut. E. Bell, Yeo. (T.F.), and to be sec'd.; Temp. 2nd Lieut. R. S. Barbour, R. Ir. Fus., and to be transf'd. to R.F.C. Gen. List; Sept. 9th.

2nd Lieut. E. S. Sawtell, Wilts. R. (T.F.), and to be secd.; Sept. 11th. Temp. 2nd Lieut. (on prob.) J. R. Harrington, Gen. List, and to be confirmed in his rank; Temp. Lieut. F. F. Dutton, M.C., Ches. R., and to be transf'd. to R.F.C. Gen. List; Sept. 18th. Temp. 2nd Lieut. C. H. Wilkins, Gen. List; Temp. 2nd Lieut. F. C. Wood, Gen. List; Sept. 19th. Lieut. P. G. Wells, L'pool R., and to be secd.; Sept. 22nd. Temp. 2nd Lieuts. (on prob.), Gen. List, and to be confirmed in their rank:—R. S. de Bruyn; Sept. 24th. F. V. Bonyn; Oct. 6th. C. G. Pentecost; Oct. 20th. R. F. Auerbach; Oct. 23rd. E. T. Heard; Oct. 26th. A. C. Jones; Oct. 27th. A. F. Bartlett; Oct. 28th. R. Foster, H. D. Gardiner, J. E. Philpott, H. F. Davison; Oct. 29th. D. J. Hughes; Oct. 30th. J. W. Norton, J. Officer, H. B. Homan, F. J. Milligan, C. H. R. Lagesse, C. H. Sharp, P. F. Hassett, H. L. Stevens, W. T. Crombie, L. J. Sanderson, O. F. D. Jackson, R. G. Turner; Oct. 31st. B. G. A. Bell, D. S. Cramb; Nov. 1st.

Flying Officers (Observers).—Lieut. F. W. Cundiff, R.F.A. (T.F.), seniority Aug. 17th, and to be secd.; Temp. 2nd Lieut. (on prob.) P. J. Bradley, Gen. List, seniority Sept. 4th, and to be confirmed in his rank; Lieut. F. E. Gilpin, R.A., and to be secd.; Nov. 2nd, seniority Sept. 10th. 2nd Lieut. R. A. Carswell, Sco. Rif. (T.F.), and to be secd.; Oct. 30th, seniority Sept. 10th. 2nd Lieut. B. Head, North'd. Fus. (T.F.), and to be secd.; Nov. 2nd, seniority Sept. 10th. Temp. 2nd Lieut. (on prob.) G. F. Webb, Gen. List, and to be confirmed in his rank; Oct. 30th, seniority Sept. 14th. 2nd Lieut. D. G. Philippe, M.C., R. Dub. Fus., S.R., and to be secd.; Nov. 3rd, seniority Sept. 17th. Temp. 2nd Lieut. (on prob.) G. A. Carter, Gen. List, and to be confirmed in his rank; Oct. 30th, seniority Sept. 24th. Temp. 2nd Lieut. (on prob.) D. A. Parrott, Gen. List, and to be confirmed in his rank; Nov. 5th, seniority Aug. 22nd. 2nd Lieut. L. Bateman, Lan. Fus. (T.F.), and to be secd.; Nov. 4th, seniority Aug. 23rd. 2nd Lieut. E. R. Manley, Durh. L.I. (T.F.), and to be secd.; Nov. 5th, seniority Sept. 10th (Nov. 1st). Nov. 1st, seniority Sept. 25th;—Temp. 2nd Lieut. J. O. Durham, North'd. Fus., and to be transf'd. to R.F.C., Gen. List; Temp. 2nd Lieut. W. Booth, Rif. Brig.

Instructors in Gunnery.—(Graded as Equipment Officers, 1st Class).—From Asst. Instrs. in Gunnery (graded as Equipment Officers, 2nd Class), and to be Temp. Capt. while so employed; Nov. 2nd;—2nd Lieut. (Temp. Lieut.) J. L. L. Duffus, Gord. Highrs. (T.F.); Temp. Lieut. T. O. C. Pease, Gen. List.

Assistant Instructor in Gunnery.—(Graded as an Equipment Officer, 2nd Class).—Temp. 2nd Lieut. N. Penty, Gen. List, from an Asst. Instr. in Gunnery (graded as an Equipment Officer, 3rd Class), and to be Temp. Lieut. whilst so employed; Nov. 2nd.

Equipment Officers, 1st Class.—The rank of Lieut. (Temp. Capt.) R. Holloway, S.R., is as now described, and not as in the *Gazette* of Oct. 31st. 2nd Class.—2nd Lieut. J. R. Nicholls, and to be Temp. Lieut. whilst so employed; Oct. 1st (substituted for notification in *Gazette* of Nov. 1st); Temp. 2nd Lieut. (on prob.) W. C. Bagnall, Gen. List, and to be confirmed in his rank, and to be Temp. Lieut. whilst so employed; Oct. 23rd. From the 3rd Class.—Temp. 2nd Lieut. T. L. Edwards, Gen. List, and to be Temp. Lieut. whilst so employed; Nov. 6th. Lieut. B. R. S. Jones, S. Wales Bord., S.R.; Nov. 8th. 3rd Class.—Lieut. R. T. Lattey, S.R., from an Asst. Instr. (graded as an Equipment Officer, 2nd Class), School of Mil. Aeronautics; Oct. 25th, seniority Dec. 13th, 1915; Temp. 2nd Lieut. (on prob.) S. G. G. Ashley, Gen. List, and to be confirmed in his rank; Sept. 24th.

School of Military Aeronautics.

Instructors (graded as Equipment Officers, 1st Class) and to be Temp. Capt. whilst so employed:—Temp. Lieut. J. H. Crutch, Gen. List, an Equipment Officer 2nd Class; Temp. Lieut. A. D. Bateman, Gen. List, from an Asst. Instr. (graded as an Equipment Officer, 2nd Class), School of Mil. Aeronautics; Sept. 4th. Lieut. (Temp. Capt.) G. G. Hubbard, S.R., from an Instr. (graded as a Flight Comdr.), School of Mil. Aeronautics; Sept. 5th. Temp. Capt. H. W. Wall, M.C., Gen. List, a Flying Officer (Obs.); Sept. 8th.

Assistant Instructors (graded as Equipment Officers, 2nd Class).—Lieut. J. E. D. Samuel, Midd'x R. (T.F.), and to be secd.; Sept. 3rd. Capt. R. C. Gill, R.A., a Flying Officer, Temp. Lieut. R. N. K. Jones, M.C., Gen. List, a Flying Officer (Obs.); 2nd Lieut. (Temp. Lieut.) L. B. Jones, M.C., Welsh R. (T.F.), a Flying Officer (Obs.), 2nd Lieut. (Temp. Lieut.) L. B. Goodyer, R. W. Surr. R. (T.F.), a Flying Officer (Obs.); 2nd Lieut. (Temp. Lieut.) T. S. Pearson, M.C., R.A., a Flying Officer (Obs.); Sept. 8th. Temp. 2nd Lieut. L. Howe, Gen. List, an Equipment Officer, 3rd Class, and to be Temp. Lieut. whilst so employed; Sept. 18th. 2nd Lieut. (Temp. Capt.) F. R. Hardie, Hrs., a Flight Comdr.; Sept. 24th.

General List.—Temp. 2nd Lieuts. to be Temp. Lieuts.—W. A. MacMichael, R. B. Cameron, G. C. Pilgrim; July 1st. Temp. 2nd Lieut. (on prob.) V. Butterworth resigns his commission; Nov. 24th. Sergt. C. M. Hallett to be Temp. 2nd Lieut.; Aug. 8th. To be Temp. 2nd Lieuts. (on prob.):—Sergt.-Maj. W. E. Townsend, from R.F.C.; Oct. 24th. Cdt. D. C. Buchan from R.F.C.; Oct. 25th. W. C. Bersey, Co.-Sergt.-Maj. H. B. Hawker, from R.E.; Oct. 29th. A. Holmes; Oct. 31st. 1st Class Air-Mech. G. L. Shaw, from R.F.C.; Nov. 1st. 2nd Class Air-Mech. P. H. Paton, from R.F.C., C. L. Smuts, late Gunner, S. Afr. F.A.; Nov. 5th. E. W. Braendle, F. A. Bracher; Nov. 11th. B. P. K. Walsh, late Corp., Cape Fortress Engrs., S.A.; J. Bushell, W. Baines, W. Eastwood, H. Fraser, H. Freeman, G. F. Gregg, J. F. Hurst, A. G. Ruthven, T. M. Moilliet, A. E. Read, H. G. Smith, P. C. Le G. Starkie, A. B. Staples, H. D. Torres, R. H. B. Tomlinson, H. J. Wadkin, H. N. Wood, H. J. Winton; Nov. 16th. Cdt. J. J. Wilson, from R.F.C.; Dec. 11th.

Cadets to be Temporary Second Lieutenants. (on prob.)—F. E. Ball, A. A. Bartram, A. C. Blackwell, S. Bowden, R. A. Boxhall, V. G. Brindley, R. E. Britton, C. H. Budd, W. H. Bundoock, P. Cabburn, R. O. Campbell, A. A. Charlesworth, E. Clark, N. V. Clarke, C. F. Cogswell, C. F. Collins, A. E. Colwell, T. Conlan, P. B. Cooke, C. J. Craft, R. S. Craig, H. J. Cramphorn, R. C. Creamer, S. B. Croyden, E. I. Dallinger, H. F. D. Delves, S. M. Desmond, R. C. Dickinson, O. C. Dinorman, J. E. Doe, H. Douthwaite, A. Drysdale, G. B. Dunlop, L. A. Durrant, E. I. J. Edwards, A. W. Elliott, F. W. Elliott, H. W. Evans, E. S. Farrand, B. Fletcher, R. A. Foggin, H. C. Foley, C. Foster, H. J. Fuller, A. E. Gardiner, B. Garrett, H. E. Gentles, F. F. Gifford, J. I. Gillman, W. Ginger, F. W. Goodman, W. Grassart, G. Hall, G. H. Hall, W. A. Hall, A. V. Hansford, F. G. Harlock, R. M. Helm, A. H. Hicks, H. G. Higgins, J. F. Higgins, H. Hill, O. D. E. Hillsdon, F. R. Hockney, R. Holman, G. B. Holmes, C. S. Hosegood, C. B. Hudson, C. W. Hurst, L. J. Hurst, N. E. D. Hutchinson, C. E. Jones, C. W. Jones, C. R. Kent, J. G. Kershaw, R. C. Knowles, C. G. Langford, F. A. Ledger, S. Leslie, F. J. Letzer, B. Fitz-W. Levett, G. L. Lewington, O. H. P. Lloyd, R. J. Loughleen, M. W. H. Mackay, J. R. McL. Keil, W. E. Macpherson, W. Marsden, L. A. Martin, A. S. Middleton, C. J. Moir, H. A. Moorley, S. E. Moss, L. E. Moutrie, C. E. Neath, R. G. Nicholls, F. G. Norman, H. Oliver, R. H. Owen, D. Oxley, K. H. Paine, R. D. C. Palmer, J. G. Paterson, H. W. Payne, C. W. Payton, E. Peacock, W. E. Pepper, F. E. Phelps, D. R. Phillips, P. J. E. Pierce, H. L. Pitt, M. Platt, G. R. Price, H. H. Price, D. W. Pugh, E. P. Pyroft, J. Rathbone, G. W. C. Ravenhill, L. F. Rippon, F. E. Robinson, S. Rodgers, G. E. A. Royle, E. R. Salter, G. Scarrett, D. P. Scott, G. E. Scott, L. Sharp, G. F. Shrieve, J. McB. V. Sillars, C. H. Smith, T. V. Smyter, W. W. Smythe, M. Taylor, T. T. Taylor, D. G. Tory, J. M. Walker, K. L. Warrington, W. F. Washington, A. H. Welch, H. West, F. L. Wraight, A. Wroot, R. G. Young, H. J. Youngman; Nov. 17th. The surname of Temp. 2nd Lieut. (on prob.) N. L. Desoer is as now described, and not as in the *Gazette* of Sept. 11th.

Supplementary to Regular Corps.—2nd Lieut. L. W. Boland to be Lieut.; Oct. 20th. 2nd Lieuts. (on prob.) confirmed in their rank:—H. M. Matheson, G. Knight.

Cadet to be Temp. Second Lieutenant (on prob.)—L. B. Edwards, Gen. List, R.F.C.; Oct. 31st.

London Gazette Supplement, November 24th.

Military Wing.—The following appointments are made:—

Flying Officers.—Temp. 2nd Lieuts. (on prob.), Gen. List, and to be confirmed in their rank:—F. S. Crossley, N. E. Maitland; Oct. 27th. D. W. B. Black; 2nd Lieut. F. J. Morgan, R. Fus., S.R., and to be secd.; Oct. 28th. 2nd Lieut. H. M. Hopwood, D. Gds., and to be secd.; 2nd Lieut. (on prob.) E. Hughes, S.R.; Oct. 29th.

Temporary Second Lieutenants (on prob.), Gen. List, and to be confirmed in their rank:—W. L. Vorster, D. W. Paton, G. Pilditch, Lieut. O. S. Dunn, M.C., Canadian Exped. For.; 2nd Lieut. D. S. Judson, Lond. R. (T.F.), from a Flying Officer (Obs.), seniority Feb. 23rd. Temp. 2nd Lieuts. (on prob.), Gen. List, and to be confirmed in their rank:—G. S. Cosgrove, C. R. Smythe, R. E. Lindsay, R. G. Lawson, F. J. Bravery, H. J. Crofts, A. H. Read, H. E. Pryce, R. M. Lees, C. J. Wilsdon, C. L. Cox; Oct. 30th. Temp. 2nd Lieut. H. S. Montgomerie, Notts. and Derby R. Temp. 2nd Lieuts. (on prob.), Gen. List, and to be confirmed in their rank:—C. C. Grant-Baker, C. F. Weaver, J. I. Ellis, H. H. Levin, J. J. Flynn, J. R. Nicholson, E. T. Evans; Oct. 31st. Lieut. G. Russell, R.A.F. (T.F.), from a Flying Officer (Obs.), seniority Jan. 15th. Temp. 2nd Lieut. A. H. Burt, S. Afr. Inf.; Lieut. H. A. S. Molyneux, Canadian Exped. Force; Temp. 2nd Lieut. G. K. Chatham, North'n R., and to be transf'd. to R.F.C., Gen. List; Capt. J. M. Taylor, Canadian Exped. Force; Nov. 1st. Temp. 2nd Lieut. (on prob.) A. L. Pemberton, Gen. List, and to be confirmed in his rank; Nov. 2nd. Lieut. J. R. Orr, Canadian Exped. Force; 2nd Lieut. F. L. Hird, E. Surr. R. (T.F.), and to be secd.; Nov. 3rd.

Flying Officers (Observers).—2nd Lieut. G. Gibbs, Lond. R. (T.F.), and to be secd.; Oct. 29th, seniority July 23rd. Temp. 2nd Lieut. A. D. S. Davis, attd. S. Staff. R., and to be transf'd. to R.F.C. Gen. List; Oct. 30th, seniority Aug. 6th. Temp. 2nd Lieut. G. E. Francis, R.E., seniority Aug. 6th, and to be transf'd. to R.F.C. Gen. List; Temp. Lieut. R. Fitton, M.C., R.A., seniority Aug. 23rd, and to be transf'd. to R.F.C. Gen. List; Capt. J. E. Johnston, Ches. R. (T.F.), seniority Sept. 10th, and to be secd.; Oct. 31st. Seniority Oct. 10th: Capt. H. R. Warden, Canadian Exped. Force; Temp. Lieut. A. P. Wornum, A.S.C., and to be transf'd. to R.F.C. Gen. List. Temp. 2nd Lieut. (on prob.) D. Alexander, Gen. List, and to be confirmed in his rank; Oct. 8th, seniority from Aug. 15th. 2nd Lieut. (Act.-Lieut.) J. Duncan, R.F.A., S.R., and to relinquish his actg. rank; Oct. 12th, seniority from Aug. 23rd. Oct. 16th, seniority from Sept. 3rd;—Temp. 2nd Lieut. E. L. Fosse, R. War. R., and to be transf'd. to R.F.C., Gen. List; 2nd Lieut. H. C. Wooley, Glou. R. (T.F.), and to be secd.; Temp. Lieut. J. M. Atkinson, A.S.C., and to be transf'd. to R.F.C. Gen. List; Oct. 17th, seniority from Sept. 10th; Temp. 2nd Lieut. G. C. Leven, attd. R. Suss. R., and to be transf'd. to R.F.C. Gen. List; Sept. 29th, seniority from Sept. 10th. 2nd Lieut. A. A. Ward, R.A., and to be secd.; Oct. 13th, seniority from Sept. 10th.

Inspector of Training Division.—Bt. Maj. (Temp. Brig.-Gen.) E. R. Ludlow-Hewitt, M.C., R. Ir. Rif., a Brig. Comdr., and to retain his temp. rank whilst so employed; Nov. 7th.

Equipment Officers, 2nd Class.—Maj. C. G. C. Hamilton, T.F. Res., from the 3rd Class; Nov. 14th. 3rd Class.—Temp. 2nd Lieuts. (on prob.), Gen. List, and to be confirmed in their rank:—J. G. Speirs; June 26th. H. A. Creswell; Oct. 1st.

General List.—The surname of Temp. 2nd Lieut. (on prob.) G. W. Baguley is as now described, and not as in *Gazette* of Oct. 25th. The appointment of Cadet W. Cumming as Temp. 2nd Lieut. (on prob.), notified in *Gazette* of Oct. 25th, is cancelled.

London Gazette Supplement, November 26th.

The following temporary appointment is made at the War Office:—

Staff Lieutenant.—Lieut. D. L. Abbott, Lond. R. (T.F.), from an Equipment Officer, 3rd Class; Aug. 13th.

Flight Commanders.—Lieut. C. R. Richardson, E. York. R., from a Flying Officer, and to be Temp. Capt. whilst so employed; Oct. 22nd (substituted for the notification in the *Gazette* of Nov. 7th). From Flying Officers, and to be Temp. Capt. whilst so employed:—Temp. Lieut. W. H. Peirce, Gen. List; Nov. 7th. 2nd Lieut. R. V. James, Durh. L.I. (T.F.); Nov. 12th.

Special Appointments.—(Graded as a Flight Commander, whilst holding the appointment).—The appointment of Lieut. (Temp. Capt.) E. G. Landon, S.R., notified in the *Gazette* of Sept. 27th, is cancelled. (Graded as a Flight Comdr.)—Temp. Lieut. E. R. M. Griffin, Gen. List, as a Flying Officer, and to be Temp. Capt. whilst so employed; Oct. 24th.

Flying Officers.—Temp. 2nd Lieuts. (on prob.), Gen. List, and to be confirmed in their rank:—A. R. McCallum, June 10th; G. H. Mackay, July 23rd; C. Heebner, R. T. Mellish; Aug. 7th. W. J. Cockburn, V. G. Snyder; Aug. 8th. R. V. Irwin; Aug. 11th. H. N. Compton; Aug. 21st. J. L. Nairn; Aug. 29th. J. B. Guthrie, B. V. Richardson; Aug. 31st. H. A. Tuckwell; Sept. 1st. H. F. Hazell; Sept. 2nd. M. Gibson; Sept. 8th. G. B. Foster; Sept. 10th. M. F. Connelly, H. E. Dunseith; Sept. 11th. N. L. D. Smith; Sept. 12th. H. F. Crowe; Sept. 17th. R. J. T. Jenner; Sept. 18th. The date of seniority of Temp. 2nd Lieut. K. P. Ewart, Gen. List, is Oct. 26th, 1916, and not as in the *Gazette* of Oct. 31st.

Inspecting Officer of Depôts.—(Graded as Depot Commander).—Qr.-Mr. and Hon. Capt. (Temp. Lieut.-Col.) F. H. Kirby, V.C., R.F.C., from a Depot Comdr., and to retain his temp. rank whilst so employed; Aug. 31st.

Depôt Commander.—Lieut. (Temp. Maj.) M. Spicer, North'n R., from a Park Comdr., and to be Temp. Lieut.-Col. whilst so employed; Sept. 27th.

Park Commander.—Temp. Capt. H. J. Newton-Clare, Gen. List, from an Equipment Officer, 1st Class, and to be Temp. Maj. whilst so employed; Oct. 16th.

Special Appointment.—(Graded as an Equipment Officer, 1st Class, whilst holding the appointment).—Lieut. (Temp. Capt.) E. G. Landon, S.R., from a Flight Comdr., and to retain his temp. rank whilst so employed; June 15th.

Schools of Instruction.—Schools of Military Aeronautics.

Assistant Instructors.—(Graded as Equipment Officers, 2nd Class).—Temp. 2nd Lieut. D. S. Allan, Gen. List, a Flying Officer, and to be Temp. Lieut. whilst so employed; Aug. 31st. Temp. 2nd Lieut. J. Edwards, Gen. List, a Flying Officer (Obs.), and to be Temp. Lieut. whilst so employed; Sept. 12th. Temp. Capt. C. Fairbairn, Gen. List, a Flight Comdr.; Sept. 24th. Temp. Lieut. G. L. Sly, Gen. List, a Flying Officer (Obs.); Sept. 26th. Temp. Lieut. H. W. Durnell, Gen. List, a Flying Officer; Sept. 30th. Lieut. C. L. Wilcox, S.R., from an Asst. Instr. (graded as a Flying Officer), School of Mil. Aeronautics; Oct. 2nd. Temp. 2nd Lieut. H. B. Howe, Gen. List, a Flying Officer, and to be Temp. Lieut. whilst so employed; Oct. 17th.

Work for R.F.C. Appreciated.

MISS MAY BAIRD (daughter of the late Sir David Baird) has been presented with a silver rose bowl and an illuminated address by the N.C.O.'s. and men of the Royal Flying Corps in the Home Counties in recognition of her work in providing free club accommodation near one of the aircraft parks.

AIRCRAFT WORK AT THE FRONT.

OFFICIAL INFORMATION.

British.

Admiralty, November 13th.
"On the afternoon of November 12th, naval aircraft carried out a bombing raid on Vlissinghem aerodrome [north-east of Ostend]. Several bombs were dropped on objective. Visibility was fair only owing to haze. During patrols which have been carried out several engagements with enemy aircraft have taken place, in which one hostile scout was shot down in flames. All our machines returned safely."

General Headquarters, November 13th.
"Although fine weather prevailed on the 12th instant, a heavy ground mist rendered observation from the air difficult. A considerable amount of work, nevertheless, was accomplished by our aeroplanes, and a number of successful bombardments were carried out by our artillery with aeroplane observation. Our low-flying aeroplanes engaged many ground targets with machine-gun fire. Several successful reconnaissances were carried out, and many photographs were taken. During the day bombs were dropped on various centres of hostile activity, but weather conditions prevented bombing operations by night. Hostile aeroplanes dropped a few bombs on our side of the line in the course of the day. A number of fights took place in the air, in the course of which we brought down one hostile machine and drove down five others out of control. Two of our machines failed to return."

General Headquarters, November 14th.
"Heavy ground mist throughout the 13th inst. again rendered observation from the air very difficult. A few successful bombardments were carried out by our artillery with aerial observation, and a few photographs were taken. Our low-flying aeroplanes engaged several ground targets with machine-gun fire. Hostile aeroplanes dropped some bombs behind our lines during the evening and at night. In the course of the day we brought down two hostile aeroplanes in air fighting, and drove down four others out of control. Another hostile machine was shot down in our lines by anti-aircraft gun fire. All our aeroplanes returned."

Admiralty, November 14th.
"During November 13th numerous patrols were carried out by the Royal Naval Air Service, several engagements with enemy machines taking place. One hostile machine was destroyed and three others driven down completely out of control."

"A bombing raid was also carried out on Houttave aerodrome. Many bombs were dropped with good effect, a direct hit being reported on sheds."

Admiralty, November 16th.
"During November 15th a bombing raid was attempted by naval aircraft on Uytkerke aerodrome, but owing to very high winds our formation did not proceed to original objective, but dropped a large number of bombs on aeroplane sheds near Handzaeme. In the course of offensive patrols two enemy aircraft have been destroyed and two driven down completely out of control. All our machines have returned safely."

General Headquarters, November 16th.
"During the early part of the 15th inst. a heavy ground mist considerably hampered aerial observation. Later in the day the mist partially cleared, and considerable activity in the air ensued. Many targets were successfully engaged by our artillery, with aerial observation, and a number of reconnaissances were carried out by our aeroplanes. On the battle front our low-flying machines engaged several ground targets with machine gun fire. Hostile aeroplanes dropped a few bombs on our side of the line. In air fighting five hostile aeroplanes were brought down, and one was driven down out of control. Another German machine was shot down by anti-aircraft guns. Four of our aeroplanes failed to return."

War Office, November 17th.
"Palestine.—The Australians, in taking El Tineh, captured large numbers of prisoners, one gun, three aeroplanes, and considerable quantities of ammunition and stores. On the 15th one hostile aeroplane was brought down."

General Headquarters, November 19th.
"On the 18th inst., in spite of low clouds and poor visibility, some successful artillery work was carried out by us with aeroplane observation. A few ground targets were engaged by our aeroplanes with machine-gun fire, and a few bombs were dropped on the enemy's lines. In air fighting, two hostile machines were brought down and one was driven down out of control. Another hostile machine was shot down by fire from the ground. One of our machines is missing."

For Officers Attached to R.N.A.S.

THE Secretary of the Admiralty announces that it has been decided, with the King's approval, that officers of the R.N.R. and R.N.V.R. attached to the R.N.A.S. (other than



Accountant Officers, R.N.R.) are to wear the uniform of their rank, with the addition on each sleeve above the distinction lace, and on each shoulder strap, of a gilt badge consisting of an "A" with wings.

The Battle of the Bight.

ALTHOUGH there is no mention in the British official announcement of the presence of aircraft in the light cruiser action in Heligoland Bight on November 17th the German *communiqué*, after referring to observations by German aeroplanes, says "German aeroplanes also took part in the fight and bombarded the large English warships."

London to Constantinople.

THE Secretary of the Admiralty made the following announcement on November 22nd:—"It will be remembered that during July a successful air attack was carried out on objectives in the vicinity of Constantinople. This was accomplished by a large British bombing aeroplane of the Handley-Page type, which flew from England, where she was constructed, to one of our bases in the Mediterranean. The

General Headquarters, November 20th.

"The weather has become stormy and wet, rendering the action of our aircraft very difficult."

"On the 19th inst. the weather continued misty, with low clouds, and little work in the air could be accomplished. A few bombs were dropped in the enemy's lines and a number of ground targets were engaged with machine-gun fire from a low altitude. One hostile machine was brought down in air fighting. All our machines returned."

French.

Paris, November 14th.
"An enemy aeroplane was brought down in aerial combat in the region of Dammarie, the two aviators being captured."

Paris, November 15th.
"German aeroplanes bombarded the region of Calais during the night of November 13th. A certain number of victims are reported among the civilian population."

Paris, November 16th.
"German aeroplanes bombarded the region south of Nancy. There were no victims."

Paris, November 20th.
"Salonica.—British aviators dropped bombs in the Struma Valley, and caused an explosion at Tusculu."

Belgian.

Havre, November 21st.
"On the morning of November 20th a German aeroplane came down in flames near Dixmude."

Italian.

Rome, November 15th.
"Yesterday our aeroplanes effectively bombarded the bridges on the Livenza and on the Monticano, and flying at a height of a few hundred metres, attacked with machine-gun fire troops and columns on the march along the roads of the Plain."

Rome, November 16th.
"During the day yesterday and in the night aeroplanes and airships repeated the bombardment of the enemy troops along the fluvial lines and ways of access."

Rome, November 17th.
"On the lower reaches of the Piave the Royal Navy, with aircraft, floating and ground batteries, and light forces, is effectively contributing to the defence. Favoured by atmospheric conditions, the work of our airmen was during the day profitably carried out against enemy troops massed."

Rome, November 17th.
"Enemy troops massed north of Asiago and in the Gallio Wood were bombarded by our aeroplanes."

Rome, November 19th.
"Enemy troops were repeatedly bombarded in the day by our aeroplanes, and in the night, in spite of the strong wind, by our airships at the basin of Prinolano, to the north-west of Susegana and at Tezze di Livenza."

Rome, November 20th.
"Our bombardment flights effectively and repeatedly bombed enemy columns in movement along the road in the Lower Val Piave, in the neighbourhood of Quero; during the night airships dropped several bombs on enemy bivouacs at Torre di Mosto (Livenza) and in the neighbourhood of the Motta di Livenza bridge, which was damaged. Two enemy machines were brought down."

German.

Berlin, November 13th.
"Lieut. Bongartz gained his 22nd and Vice-Sergeant-Major Buckler his 25th aerial victory."

"Six large English aeroplanes attacked Bruges docks during the night of November 9th. They were compelled by our searchlights and fire to change their course, but dropped some bombs. No military damage was caused, but two Belgians were killed."

Berlin, November 16th.
"Since November 9th our enemies have lost 24 aeroplanes in aerial encounters and by anti-aircraft fire. Vice-Sergeant-Major Buckler has gained his 26th, Lieutenant Bongartz his 23rd aerial victory."

Berlin, November 19th.
"Sergeant-Major Buckler, who on account of his fighting accomplishments has been promoted to be lieutenant, yesterday shot down one enemy aeroplane and two captive balloons, and thereby gained his 27th, 28th, and 29th aerial victories."

journey was accomplished in a series of eight flights. Among other places, stops were made at Lyons and Rome. The total distance flown was nearly 2,000 miles, the machine being actually in the air for just over 31 hours. During some parts of the flight strong winds and heavy rain-storms were experienced, and for one stretch of over 200 miles the route lay over mountainous country where it would have been impossible for any machine to land. Nevertheless the aeroplane carried out its journey practically to time table, which is believed to be easily a world's record for a cross-country journey, and also for the weight carried for the distance, the machine being self-contained as regards engine and aeroplane spares."

It has been stated unofficially that the machine on the journey to Constantinople was piloted by Squadron-Commander K. S. Savory, Flight Lieutenant H. Maccllelland, and Engineer Lieutenant T. Rawlings. The mechanic was P.O. Benjamin Cromack.

Mr. Orville Wright and the Royal Society of Arts.

THE following letter has been received by the Duke of Connaught, President of the Royal Society of Arts, from Mr. Orville Wright, Dayton, Ohio, U.S.A. :—

"I have the pleasure of acknowledging the receipt of your Royal Highness's letter and the Albert Medal of the Royal Society of Arts, which were forwarded to me through the British Ambassador at Washington. I wish to express my appreciation of the honour conferred upon me by the Royal Society of Arts as a recognition of the work of my brother Wilbur and myself towards the solution of the problem of flight. I appreciate with the utmost gratification the honour of being placed by your society among such men as those to whom this coveted medal has been awarded in years past."

SIDE-WINDS.

THE Board of Trade have now given formal sanction to a new company, with works in London and Liverpool, and known as The British Barimar-Thermit Welding Co., Ltd., to take up and exploit the Thermit welding process, which, prior to the war, was exclusively in German hands. Thermit is specially applicable for tramway welding and for the repair of heavy castings and machine parts, and it is the intention of Mr. C. W. Brett, the managing director and general manager of Barimar, Ltd., scientific welding engineers (who is largely responsible for the formation and management of the new company) to train disabled British soldiers and sailors to carry on the work. The registered offices of the new company are at 10, Poland Street, London, W. 1.

RURAL England in war time is the *pièce de résistance* of Gamage's Christmas Bazaar, which is now open, and model aeroplanes are, of course, seen flying over the landscape. In spite of the restrictions inevitably imposed by war-time it will be found that the Bazaar includes presents for young and old and to suit all pockets.

THOSE who are the fortunate possessors of those useful little desk, day by day, calendars and jotters which the Cellon Company thoughtfully supplied to their friends a year ago should note that the Company has been fortunate enough to get hold of a few refills to enable the jotter to be used for next year. Any one who wishes to obtain one of these refills should send a line to Mr. A. J. Wallace Barr at once, for the few which are available are sure to be snapped up early.

WITH reference to the note which appeared in this column recently regarding the joining up of Mr. F. C. Nestler with Mr. James Putman, we are asked to make it clear that Mr. Nestler is manager of the Hangar Department only at the Southern Works, Aylesbury.

A LITTLE letter misplaced makes a lot of difference to a word, especially when it happens to be in the name of an excellent article as the Exelaero brand of aircraft paints and varnishes, for which Messrs. Freeman, Sons and Co., Ltd., of Wandale Colour Works, Wandsworth, S.W. 18, are renowned. The expressive name which they have chosen to mark these products is spelt as above, and not as the artist had it in their announcement in our last issue.

MR. A. W. GAMAGE has been nominated for the vacancy on the Corporation of London, in the ward of Farringdon Without, caused by the death of Mr. Benjamin Turner.

A GOOD many aircraft firms have from time to time been in trouble with the radiator and oil pipe tubing, and especially so when light gauges have been needed for work of this character. One of the brass and copper tube firms, whose long experience enables them to deal successfully with difficulties incident on the manufacture of light gauge small size tubing, is C. M. Powell Bros., of Aston Road Tube Mills, Birmingham. The company was first established over a century ago, and

ever since that date has been connected with the brass and copper industry. They were, soon after the outbreak of war, controlled, and since that time have been solely engaged in one department on special aircraft tubing, turning out enormous quantities to the complete satisfaction of the Government Aircraft manufacturers, and radiator manufacturers would do well to enquire of them when requiring small or light gauge, or special oil pipe tubing.

THE magneto used on the Handley-Page biplane, which journeyed from London to Constantinople last July, also was British-made by members of the British Ignition Apparatus Association.

WE understand that the business of the London Aviation Co., Ltd., if 215, Mare Street, Hackney, E. 8, has been acquired by the Jackson Aircraft Co., Ltd., the directors being Messrs. A. H. Botwright, A. Jackson and C. O. Jacobs. The new company will take over all existing contracts and liabilities.

THOSE who are giving presents this Christmas will find that the Goldsmiths' and Silversmiths' Co. are offering a very attractive range of suitable gifts, all of them up to the high standard of quality for which this firm is renowned. Badges of both flying services can, of course, be obtained in a large variety of styles, but a little novelty which is sure of appreciation is a model propeller suitable for a tie pin, brooch or lace pin. It can be had set in diamonds, or in plain gold or gold with a single stone. For those who are unable to make a personal visit to their Regent Street Showrooms the Goldsmiths' and Silversmiths' Co. have got out an illustrated Christmas list which renders shopping by post a simple matter.

FOLLOWING upon the recent 2½d. per gallon reduction the companies forming the Pool Board (Petroleum Supplies) now announce that owing to further reductions in the Government War Risk Insurance upon vessels the wholesale price of all grades of War Motor Spirit has been reduced as from Monday, November 26th. The new wholesale prices effect a reduction of 2d. in the retail prices to the public of War Motor Spirit, the current prices of which in England and Wales are now as follows:—No. 2 War Motor Spirit, 3s. 7d. per gallon; No. 3 War Motor Spirit, 3s. 6d. per gallon; Scotland and Ireland 1d. additional.

AN important group of New York financial and commercial men have acquired the patent rights for manufacturing Triplex Safety Glass for war purposes, including automobile windscreens, ships' portholes, chart tables, bridge screens, aviation goggles, aeroplane windscreens and observation panels and many other important uses. A factory, plant and machinery are in course of construction for the manufacture of Triplex glass in America, and will shortly be in operation. Meanwhile a member of the syndicate, Mr. W. J. Finlay, is in London, and will deal with all enquiries.

A Permanent Memorial to Women's Work.

CERTAINLY one of the most interesting sections of the National War Museums will be the permanent collection of engineering exhibits illustrating women's work. The range of women's work in connection with munitions and other war stores has developed to such an extent that a Special Committee has been formed to undertake the work of collecting specimens. It is only intended to illustrate war work, including such items as aero-engines, aeroplanes, steam and other engines, motor vehicles, machine tools, guns, small arms, gauges, small tools, gun-sights, &c., and firms who are willing to assist are asked to send particulars of suitable specimens to the Committee. The name and address of the firm presenting the specimens will be recorded either on the specimen or on the case containing them. For the present the Committee do not want actual specimens, but only ask for particulars, which should be forwarded to the Women's Work Sub-Committee, National War Museum, 9, Queen Anne's Gate, London, S.W. 1.

French Air Work.

DURING the ten months up to the end of October the records of the French aviators show that they destroyed 120 German aeroplanes over the French lines, also 397 over the German lines, the destruction of which has been fully confirmed. In addition to these, 513 others were brought down over the German lines and probably destroyed, but confirmation of these was unobtainable. The largest totals were in May,

when 18 were shot down in the French lines, 78 in the German lines, and 102 were disabled and probably destroyed. Twenty-two German captive balloons were also destroyed.

French Aeroplane in Holland.

THE Amsterdam *Telegraaf*, in a message from a frontier correspondent, says that a French aeroplane came down on November 18th. It was manned by a sub-lieutenant, who came from the front, lost his way in the fog, and was forced to descend owing to lack of petrol. The airman and his machine were interned.

Rome Preparing for Raids.

THE civic authorities of the "Eternal City" evidently believe in being prepared, and Prince Colonna, the Mayor, has issued detailed instructions to the citizens in view of probable air raids.

D'Annunzio a Prisoner.

IT has been unofficially announced in Italy that Gabriele d'Annunzio, the poet-aviator, has been missing since November 11th. The German papers have announced that he was among the prisoners captured in the recent battles on the Tagliamento.

Air Raid on Ghent.

A REPORT from Amsterdam says that on Sunday aeroplanes of the Allies bombed Ghent Aerodrome, destroying three or four aeroplane sheds and killing seven German officers and men, while 40 others were wounded. The Allied aviators returned in a westerly direction, apparently unharmed.

COMPANY MATTERS.

Rolls-Royce, Ltd.

THE report of the directors for the year ended October 31st, 1916, has now been issued. The delay has been due to the time absorbed in assessing the values of the extensive capital expenditure undertaken to meet Government requirements. After paying or providing for all trading expenses, and liberal depreciation of pre-war buildings, machinery and plant, and making due provision towards writing down to estimated post-war value, new buildings, machinery and plant, erected and installed for munitions of war purposes, and after charging repairs and replacements to revenue, the trading for the year has resulted in a net profit of £82,640 8s. 10d., as compared with £44,171 9s. 1d. for the previous year. At the meeting on March 9th last the directors recommended, and the shareholders approved, the payment of a dividend at the rate of 10 per cent. for the year, less income tax, which was subsequently distributed. The directors recommend that the balance of profits should be utilised as set out in the appropriation account. The company is not only contributing to the prosecution of the war by its far-famed productions, but also by providing the British and Allied Governments with results of its considerable experience since its formation.

S. Smith and Sons (Motor Accessories), Ltd.

PRESIDING at the general meeting of this company on November 14th, Mr. Samuel Smith (the Chairman) said it was not possible to submit the accounts owing to difficulties in regard to allowances and adjustments under the provisions of the Munitions Acts and the Finance Acts. He was, however, able to say that for the year ended July, 1916, the turnover was £396,412, and for the period under review it had increased to £746,899. He thought when the accounts came before them, they would be satisfied that owing to the largely increased turnover, the company had had a satisfactory year's trading.

He and his family were large shareholders in the company, and it was the future even more than the present in which he had faith. Since the beginning of the war, the board, although busily occupied with the present, had had an eye to the future, and knowing that no business was better placed or had a better experience to produce certain accessories, they had acquired some exceedingly valuable inventions. They had also secured the services of engineers of proved ability, and besides acquiring the important business and goodwill of one inventor and manufacturer, had secured his services as consulting engineer.

With regard to their motor accessories they had enlarged their premises and added considerably to their installation, and so were capable of a larger output than last year. They had acquired control of several new fittings and accessories, and had also, by consent of the Minister of Munitions, produced new and improved designs of their specialities, which had proved their worth.

A resolution declaring a final dividend of 1s. 3d. per share, making, with the interim distribution of 9d. per share, 10 per cent., free of tax, for the year, was carried unanimously.

The meeting also voted 100 guineas to King George's Sailors' Fund, in addition to contributions made during the year to a number of war charities.

NEW COMPANIES REGISTERED.

AZ-NU ENGINEERING CO., LTD., 261, Church Road, Mitcham.—Capital £12,000, in 10,000 preference and 2,000 ordinary shares of £1 each. Metal workers, manufacturers of aircraft and component parts, &c. First directors: C. Baynes, A. E. Heath, C. L. S. Fouracres and A. Greenless.

DELACOMBE, MARECHAL AND HERVIEU, LTD., 166, Piccadilly, W.—Capital £3,000 in £1 shares. Acquiring the business of manufacturers of and contractors for hangars and airship sheds carried on by H. Delacombe, P. M. G. Marechal and G. Hervieu at 166, Piccadilly, W., and at Orvis Shipyard, Ipswich, as "Marechal and Hervieu." First directors: P. M. G. Marechal and G. Hervieu.

TRIPLEX GOGGLE MASK AND LENS CO., LTD.—Capital £3,000, in £1 shares. Optical glass manufacturers, manufacturers of goggles and goggle masks (particularly those fitted with Triplex safety glass for the use of aviators), eye glasses, &c. Under agreement (a) with the Triplex Safety Glass Co., Ltd., and (b) with J. H. Bulford. First directors, R. G. M. Delpech and J. H. Bulford.

THOMAS WARD ENGINEERING CO., LTD.—Private Company. Registered October 26th. Capital £6,250, in 5,000 preference shares of £1 each and 5,000 ordinary shares of 5s. each. Acquiring the business carried on at 134, High Road, New Southgate, as "Thomas Ward and Co." Iron-founders, mechanical engineers of and dealers in sea- and

air-planes and component parts thereof, motor car manufacturers, &c. First directors: J. F. Joyce and L. Tunstill. WESSEX AIRCRAFT AND SHIPBUILDING CO., LTD.—Capital £55,000, in £1 shares (25,000 preference). Manufacturers of and dealers in aircraft, naval and mercantile shipbuilders, &c.

BUSINESS NAMES REGISTRATIONS.

AIRCRAFT STEEL CONSTRUCTION CO. 39, Victoria Street, S.W. 1. Registered October 24th, 1917.—Proprietor: J. J. Mayrow (Russian), 30, Lambert Road, Brixton Hill, S.W. Business commenced June, 1916.

NEW RIGID AIRCRAFT CO. 39, Victoria Street, S. W. 1.—Registered October 24th, 1917. Aircraft designers and constructors. Proprietor: James J. Mayrow (Russian), 30, Lambert Road, Brixton Hill, S.W. Business commenced October 1st, 1917.

IMPORTS AND EXPORTS, 1916-1917.

AEROPLANES, airships, balloons, and parts thereof (not shown separately before 1910). For 1910 and 1911 figures, see "FLIGHT" for January 25th, 1912; for 1912 and 1913, see "FLIGHT" for January 17th, 1914; for 1914, see "FLIGHT" for January 15th, 1915; for 1915, see "FLIGHT" for January 13th, 1916; and for 1916, see "FLIGHT" for January 11th, 1917.

| | Imports. | | Exports. | | Re-Exportation. | |
|---------------|----------|----------|----------|----------|-----------------|-------|
| | 1916. | 1917. | 1916. | 1917. | 1916. | 1917. |
| January ... | £ 1,509 | £ 10,842 | £ 6,399 | £ 67,033 | Nil. | Nil. |
| February ... | 6,444 | 9,479 | 30,693 | 26,512 | — | 6 |
| March ... | 3,388 | 11,158 | 17,872 | 58,517 | 7 | — |
| April ... | 3,383 | 21,141 | 22,608 | 21,151 | 3,783 | — |
| May ... | 1,986 | 6,877 | 26,165 | 59,713 | 300 | — |
| June ... | 4,986 | 2,670 | 50,287 | 14,647 | — | — |
| July ... | 2,072 | 9,104 | 12,932 | 106,250 | — | — |
| August ... | 2,583 | 18,680 | 13,555 | 68,315 | 420 | 258 |
| September ... | 1,076 | 9,047 | 36,048 | 56,491 | — | 30 |
| October ... | 952 | 58,086 | 9,289 | 73,580 | 8 | 100 |
| | 28,379 | 157,084 | 225,848 | 552,209 | 4,518 | 394 |

PUBLICATIONS RECEIVED.

Glorious Exploits of the Air. By Edgar Middleton. London: Simpkin, Marshall, Hamilton, Kent and Co., Ltd. Price 5s. net.

Punch Almanack, 1918. London: Punch Offices, Bouverie Street, E.C. Price 6d.

The Work and Training of the Royal Flying Corps. London: Offices of the Illustrated London News, 172, Strand, W.C. 2. Price 2s. 6d. net.

Aeronautical Patents Published.

Applied for in 1916.

The numbers in brackets are those under which the specifications are printed and abridged, &c.

Published November 22nd, 1917.

- 13,070. T. P. BROOKE. Flying-boats. (110,561.)
13,628. S. G. STARLING, A. J. HUGHES AND H. HUGHES AND SON. Apparatus for measuring tilt or radial acceleration during turning movements of aeroplanes, and for compensating effects of such tilt or acceleration on compasses. (110,565.)

Applied for in 1917.

The numbers in brackets are those under which the specifications are printed and abridged, &c.

Published November 22nd, 1917.

806. J. P. MULLER. Automatic marine life-saving apparatus, means for supporting flying-machines on water, and floating buoys discharged from guns. (110,668.)

If you require anything pertaining to aviation, study "FLIGHT'S" Buyers' Guide and Trade Directory, which appears in our advertisement pages each week (see pages xlv, xlv and xlv).

FLIGHT

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